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Shaylor E. Dunn
Date of Signature 3/18/02

PATENT

#6

136

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Malouf et al.

Examiner: Not Assigned

Application No.: 10/029,413

Group Art Unit: Not Assigned

Filed: December 20, 2001

Docket No.: 421/29/2

Confirmation No.: 3695

For: PURIFIED AND ISOLATED PLATELET CALCIUM CHANNEL NUCLEIC ACIDS
AND POLYPEPTIDES AND THERAPEUTIC AND SCREENING METHODS
USING SAME

STATEMENT THAT SEQUENCE LISTING AND
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Respectfully submitted,

JENKINS & WILSON, P.A.

Date: 03/18/2002

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421/29/2 AAT/JAL/sed 25297
PATENT TRADEMARK OFFICE



SEQUENCE LISTING

#6

<110> Malouf, Nadia
Nichols, Timothy C.

<120> Purified and Isolated Platelet Calcium Channel Nucleic Acids and Polypeptides and Therapeutic and Screening Methods Using Same

<130> 421/29

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<170> PatentIn version 3.1

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aaa agt aac cct gaa gaa tgc agg gga ctt ttc atc ctc tac aag Lys Ser Asn Pro Glu Glu Cys Arg Gly Leu Phe Ile Leu Tyr Lys 1070 1075 1080	3249
gat ggg gat gtt gac agt cct gtg gtc cgt gaa cgg atc tgg caa Asp Gly Asp Val Asp Ser Pro Val Val Arg Glu Arg Ile Trp Gln 1085 1090 1095	3294
aac agt gat ttc aac ttc gac aac gtc ctc tct gct atg atg gcg Asn Ser Asp Phe Asn Phe Asp Asn Val Leu Ser Ala Met Met Ala 1100 1105 1110	3339
ctc ttc aca gtc tcc acg ttt gag ggc tgg cct gcg ttg ctg tat Leu Phe Thr Val Ser Thr Phe Glu Gly Trp Pro Ala Leu Leu Tyr 1115 1120 1125	3384
aaa gcc atc gac tcg aat gga gag aac atc ggc cca atc tac aac Lys Ala Ile Asp Ser Asn Gly Glu Asn Ile Gly Pro Ile Tyr Asn 1130 1135 1140	3429
cac cgc gtg gag atc tcc atc ttc ttc atc atc tac atc atc att His Arg Val Glu Ile Ser Ile Phe Phe Ile Ile Tyr Ile Ile Ile 1145 1150 1155	3474
gta gct ttc ttc atg atg aac atc ttt gtg ggc ttt gtc atc gtt Val Ala Phe Phe Met Met Asn Ile Phe Val Gly Phe Val Ile Val 1160 1165 1170	3519

aca	ttt	cag	gaa	caa	gga	gaa	aaa	gag	tat	aag	aac	tgt	gag	ctg	3564
Thr	Phe	Gln	Glu	Gln	Gly	Glu	Lys	Glu	Tyr	Lys	Asn	Cys	Glu	Leu	
1175						1180					1185				
gac	aaa	aat	cag	cgt	cag	tgt	gtt	gaa	tac	gcc	ttg	aaa	gca	cg	3609
Asp	Lys	Asn	Gln	Arg	Gln	Cys	Val	Glu	Tyr	Ala	Leu	Lys	Ala	Arg	
1190						1195					1200				
ccc	ttg	cg	aga	ta	c	atc	ccc	aaa	aa	c	cc	ta	c	tg	3654
Pro	Leu	Arg	Arg	Tyr	Ile	Pro	Lys	Asn	Pro	Tyr	Gln	Tyr	Lys	Phe	
1205						1210					1215				
tgg	ta	gt	gt	gt	aa	c	t	c	c	t	gaa	ta	c	atg	3699
Trp	Tyr	Val	Val	Asn	Ser	Ser	Pro	Phe	Glu	Tyr	Met	Met	Phe	Val	
1220						1225					1230				
ctc	atc	at	g	ct	aa	ca	ct	tgc	tt	g	cc	at	ca	tg	3744
Leu	Ile	Met	Leu	Asn	Thr	Leu	Cys	Leu	Ala	Met	Gln	His	Tyr	Glu	
1235						1240					1245				
cag	tcc	aag	atg	t	tc	aa	t	gat	g	c	at	ctg	aa	c	3789
Gln	Ser	Lys	Met	Phe	Asn	Asp	Ala	Met	Asp	Ile	Leu	Asn	Met	Val	
1250						1255					1260				
ttc	acc	ggg	gt	tt	cc	ac	gtc	g	at	g	tt	aa	gtc	atc	3834
Phe	Thr	Gly	Val	Phe	Thr	Val	Glu	Met	Val	Leu	Lys	Val	Ile	Ala	
1265						1270					1275				
ttt	aag	cct	aag	ggg	tat	ttt	agt	gac	gcc	tgg	aa	ac	gtt	ttt	3879
Phe	Lys	Pro	Lys	Gly	Tyr	Phe	Ser	Asp	Ala	Trp	Asn	Thr	Phe	Asp	
1280						1285					1290				
tcc	ctc	atc	gt	atc	gg	gc	ag	att	at	aa	g	ct	ag	ca	3924
Ser	Leu	Ile	Val	Ile	Gly	Ser	Ile	Ile	Asp	Val	Ala	Leu	Ser	Glu	
1295						1300					1305				
gcg	gac	aac	tct	gaa	gag	ag	aat	aga	atc	tcc	atc	acc	ttt	ttc	3969
Ala	Asp	Asn	Ser	Glu	Glu	Ser	Asn	Arg	Ile	Ser	Ile	Thr	Phe	Phe	
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cgt	ctt	ttc	cga	gt	at	cg	tt	gt	aa	gt	tt	ag	gg	gg	4014
Arg	Leu	Phe	Arg	Val	Met	Arg	Leu	Val	Lys	Leu	Leu	Ser	Arg	Gly	
1325						1330					1335				
gaa	ggc	atc	cg	ac	tt	ct	tgg	act	ttt	att	aag	tcc	ttt	cag	4059
Glu	Gly	Ile	Arg	Thr	Leu	Leu	Trp	Thr	Phe	Ile	Lys	Ser	Phe	Gln	
1340						1345					1350				
gcg	ctc	ccg	tat	gt	gg	cc	ct	ctc	at	aa	gt	tt	ttc	atc	4104
Ala	Leu	Pro	Tyr	Val	Ala	Leu	Leu	Ile	Ala	Met	Leu	Phe	Phe	Ile	
1355						1360					1365				
tat	g	cg	at	gg	at	cg	at	ttt	gg	aa	gt	cc	at	ga	4149
Tyr	Ala	Val	Ile	Gly	Met	Gln	Met	Phe	Gly	Lys	Val	Ala	Met	Arg	
1370						1375					1380				
gat	aa	ac	c	at	ca	at	gg	aa	at	cc	cag	ac	ttt	ccc	4194
Asp	Asn	Asn	Gln	Ile	Asn	Arg	Asn	Asn	Asn	Phe	Gln	Thr	Phe	Pro	
1385						1390					1395				
cag	g	cg	gt	ct	ct	tt	agg	tgt	gca	ac	gg	gag	cc	tgg	4239
Gln	Ala	Ala	Val	Leu	Leu	Leu	Arg	Cys	Ala	Thr	Gly	Glu	Ala	Trp	
1400						1405					1410				
cag	g	g	at	at	ct	gg	tgt	ct	cca	gg	aa	tgt	g	c	4284
Gln	Glu	Ile	Met	Leu	Ala	Cys	Leu	Pro	Gly	Lys	Leu	Cys	Asp	Pro	
1415						1420					1425				
gag	tca	gat	ta	ca	cc	gg	gag	gag	ta	ca	tgt	gg	ag	aa	4329
Glu	Ser	Asp	Tyr	Asn	Pro	Gly	Glu	Glu	Tyr	Thr	Cys	Gly	Ser	Asn	
1430						1435					1440				
ttt	g	cc	at	gt	ta	tt	at	gt	cc	tg	tg	tg	ca	tt	4374
Phe	Ala	Ile	Val	Tyr	Phe	Ile	Ser	Phe	Tyr	Met	Leu	Cys	Ala	Phe	
1445						1450					1455				

ctg atc atc aat ctg ttt gtg	gct gtc atc atg gat	aat ttc gac	4419
Leu Ile Ile Asn Leu Phe Val	Ala Val Ile Met Asp	Asn Phe Asp	
1460	1465	1470	
tat ctg acc cgg gac tgg tct	att ttg ggg cct cac	cat tta gat	4464
Tyr Leu Thr Arg Asp Trp Ser	Ile Leu Gly Pro His	His Leu Asp	
1475	1480	1485	
gaa ttc aaa aga ata tgg tca	gaa tat gac cct gag	gca aag gga	4509
Glu Phe Lys Arg Ile Trp Ser	Glu Tyr Asp Pro Glu	Ala Lys Gly	
1490	1495	1500	
agg ata aaa cac ctt gat gtg	gtc act ctg ctt cga	cgc atc cag	4554
Arg Ile Lys His Leu Asp Val	Val Thr Leu Leu Arg	Arg Ile Gln	
1505	1510	1515	
cct ccc ctg ggg ttt ggg aag	tta tgt cca cac agg	gta gcg tgc	4599
Pro Pro Leu Gly Phe Gly Lys	Leu Cys Pro His Arg	Val Ala Cys	
1520	1525	1530	
aag aga tta gtt gcc atg aac	atg cct ctc aac agt	gac ggg aca	4644
Lys Arg Leu Val Ala Met Asn	Met Pro Leu Asn Ser	Asp Gly Thr	
1535	1540	1545	
gtc atg ttt aat gca acc ctg	ttt gct ttg gtt cga	acg gct ctt	4689
Val Met Phe Asn Ala Thr Leu	Phe Ala Leu Val Arg	Thr Ala Leu	
1550	1555	1560	
aag atc aag acc gaa ggg aac	ctg gag caa gct aat	gaa gaa ctt	4734
Lys Ile Lys Thr Glu Gly Asn	Leu Glu Gln Ala Asn	Glu Glu Leu	
1565	1570	1575	
cgg gct gtg ata aag aaa att	tgg aag aaa acc agc	atg aaa tta	4779
Arg Ala Val Ile Lys Lys Ile	Trp Lys Lys Thr Ser	Met Lys Leu	
1580	1585	1590	
ctt gac caa gtt gtc cct cca	gct ggt gat gat gag	gta acc gtg	4824
Leu Asp Gln Val Val Pro Pro	Ala Gly Asp Asp Glu	Val Thr Val	
1595	1600	1605	
ggg aag ttc tat gcc act ttc	ctg ata cag gac tac	ttt agg aaa	4869
Gly Lys Phe Tyr Ala Thr Phe	Leu Ile Gln Asp Tyr	Phe Arg Lys	
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ttc aag aaa cgg aaa gaa caa	gga ctg gtg gga aag	tac cct gcg	4914
Phe Lys Lys Arg Lys Glu Gln	Gly Leu Val Gly Lys	Tyr Pro Ala	
1625	1630	1635	
aag aac acc aca att gcc cta	cag gcg gga tta agg	aca ctg cat	4959
Lys Asn Thr Thr Ile Ala Leu	Gln Ala Gly Leu Arg	Thr Leu His	
1640	1645	1650	
gac att ggg cca gaa atc cgg	cgt gct ata tcg tgt	gat ttg caa	5004
Asp Ile Gly Pro Glu Ile Arg	Arg Ala Ile Ser Cys	Asp Leu Gln	
1655	1660	1665	
gat gac gag cct gag gaa aca	aaa cga gaa gaa gaa	gat gat gtg	5049
Asp Asp Glu Pro Glu Glu Thr	Lys Arg Glu Glu Glu	Asp Asp Val	
1670	1675	1680	
ttc aaa aga aat ggt gcc ctg	ctt gga aac cat gtc	aat cat gtt	5094
Phe Lys Arg Asn Gly Ala Leu	Leu Gly Asn His Val	Asn His Val	
1685	1690	1695	
aat agt gat agg aga gat tcc	ctt cag cag acc aat	acc acc cac	5139
Asn Ser Asp Arg Arg Asp Ser	Leu Gln Gln Thr Asn	Thr Thr His	
1700	1705	1710	
cgt ccc ctg cat gtc caa agg	cct tca att cca cct	gca agt gat	5184
Arg Pro Leu His Val Gln Arg	Pro Ser Ile Pro Pro	Ala Ser Asp	
1715	1720	1725	
act gag aaa ccg ctg ttt cct	cca gca gga aat tcg	gtg tgt cat	5229
Thr Glu Lys Pro Leu Phe Pro	Pro Ala Gly Asn Ser	Val Cys His	
1730	1735	1740	

aac cat	cat aac cat aat tcc	ata gga aag caa gtt	ccc acc tca	5274
Asn His	His Asn His Asn Ser	Ile Gly Lys Gln Val	Pro Thr Ser	
1745	1750	1755		
aca aat	gcc aat ctc aat aat	gcc aat atg tcc aaa	gct gcc cat	5319
Thr Asn	Ala Asn Leu Asn Asn	Ala Asn Met Ser Lys	Ala Ala His	
1760	1765	1770		
gga aag	cgg ccc agc att ggg	aac ctt gag cat gtg	tct gaa aat	5364
Gly Lys	Arg Pro Ser Ile Gly	Asn Leu Glu His Val	Ser Glu Asn	
1775	1780	1785		
ggg cat	cat tct tcc cac aag	cat gac cgg gag cct	cag aga agg	5409
Gly His	His Ser Ser His Lys	His Asp Arg Glu Pro	Gln Arg Arg	
1790	1795	1800		
tcc agt	gtg aaa aga acc cgc	tat tat gaa act tac	att agg tcc	5454
Ser Ser	Val Lys Arg Thr Arg	Tyr Tyr Glu Thr Tyr	Ile Arg Ser	
1805	1810	1815		
gac tca	gga gat gaa cag ctc	cca act att tgc cgg	gaa gac cca	5499
Asp Ser	Gly Asp Glu Gln Leu	Pro Thr Ile Cys Arg	Glu Asp Pro	
1820	1825	1830		
gag ata	cat ggc tat ttc agg	gac ccc cac tgc ttg	ggg gag cag	5544
Glu Ile	His Gly Tyr Phe Arg	Asp Pro His Cys Leu	Gly Glu Gln	
1835	1840	1845		
gag tat	tgc agt agt gag gaa	tgc tac gag gat gac	agc tcg ccc	5589
Glu Tyr	Phe Ser Ser Glu Glu	Cys Tyr Glu Asp Asp	Ser Ser Pro	
1850	1855	1860		
acc tgg	agc agg caa aac tat	ggc tac tac agc aga	tac cca ggc	5634
Thr Trp	Ser Arg Gln Asn Tyr	Gly Tyr Tyr Ser Arg	Tyr Pro Gly	
1865	1870	1875		
aga aac	atc gac tct gag agg	ccc cga ggc tac cat	cat ccc caa	5679
Arg Asn	Ile Asp Ser Glu Arg	Pro Arg Gly Tyr His	His Pro Gln	
1880	1885	1890		
gga ttc	ttg gag gac gat gac	tcg ccc gtt tgc tat	gat tca cgg	5724
Gly Phe	Leu Glu Asp Asp Asp	Ser Pro Val Cys Tyr	Asp Ser Arg	
1895	1900	1905		
aga tct	cca agg aga cgc cta	cta cct ccc acc cca	gca tcc cac	5769
Arg Ser	Pro Arg Arg Arg Leu	Leu Pro Pro Thr Pro	Ala Ser His	
1910	1915	1920		
cgg aga	tcc tcc ttc aac ttt	gag tgc ctg cgc cgg	cag agc agc	5814
Arg Arg	Ser Ser Phe Asn Phe	Glu Cys Leu Arg Arg	Gln Ser Ser	
1925	1930	1935		
cag gaa	gag gtc ccg tcg tct	ccc atc ttc ccc cat	cgc acg gcc	5859
Gln Glu	Glu Val Pro Ser Ser	Pro Ile Phe Pro His	Arg Thr Ala	
1940	1945	1950		
ctg cct	ctg cat cta atg cag	caa cag atc atg gca	gtt gcc ggc	5904
Leu Pro	Leu His Leu Met Gln	Gln Gln Ile Met Ala	Val Ala Gly	
1955	1960	1965		
cta gat	tca agt aaa gcc cag	aag tac tca ccg agt	cac tcg acc	5949
Leu Asp	Ser Ser Lys Ala Gln	Lys Tyr Ser Pro Ser	His Ser Thr	
1970	1975	1980		
cgg tcg	tgg gcc acc cct cca	gca acc cct ccc tac	cgg gac tgg	5994
Arg Ser	Trp Ala Thr Pro Pro	Ala Thr Pro Pro Tyr	Arg Asp Trp	
1985	1990	1995		
aca ccg	tgc tac acc ccc ctg	atc caa gtg gag cag	tca gag gcc	6039
Thr Pro	Cys Tyr Thr Pro Leu	Ile Gln Val Glu Gln	Ser Glu Ala	
2000	2005	2010		
ctg gac	cag gtg aac ggc agc	ctg ccg tcc ctg cac	cgc agc tcc	6084
Leu Asp	Gln Val Asn Gly Ser	Leu Pro Ser Leu His	Arg Ser Ser	
2015	2020	2025		

tgg tac aca gac gag ccc gac atc tcc tac cg ^g act ttc aca cca Trp Tyr Thr Asp Glu Pro Asp Ile Ser Tyr Arg Thr Phe Thr Pro 2030 2035 2040	6129
gcc agc ctg act gtc ccc agc agc ttc cg ^g aac aaa aac agc gac Ala Ser Leu Thr Val Pro Ser Ser Phe Arg Asn Lys Asn Ser Asp 2045 2050 2055	6174
aag cag agg agt gc ^g gac agc ttg gt ^g gag gca gtc ctg ata tcc Lys Gln Arg Ser Ala Asp Ser Leu Val Glu Ala Val Leu Ile Ser 2060 2065 2070	6219
gaa ggc ttg gga cgc tat gca agg gac cca aaa tt ^t gt ^g tca gca Glu Gly Leu Gly Arg Tyr Ala Arg Asp Pro Lys Phe Val Ser Ala 2075 2080 2085	6264
aca aaa cac gaa atc gct gat gcc tgt gac ctc acc atc gac gag Thr Lys His Glu Ile Ala Asp Ala Cys Asp Leu Thr Ile Asp Glu 2090 2095 2100	6309
atg gag agt gca gcc agc acc ctg ctt aat ggg aac gt ^g cgt ccc Met Glu Ser Ala Ala Ser Thr Leu Leu Asn Gly Asn Val Arg Pro 2105 2110 2115	6354
cga gcc aac ggg gat gt ^g ggc ccc ctc tca cac cgg cag gac tat Arg Ala Asn Gly Asp Val Gly Pro Leu Ser His Arg Gln Asp Tyr 2120 2125 2130	6399
gag cta cag gac tt ^t ggt cct ggc tac agc gac gaa gag cca gac Glu Leu Gln Asp Phe Gly Pro Gly Tyr Ser Asp Glu Glu Pro Asp 2135 2140 2145	6444
cct ggg agg gat gag gag gac ctg gcg gat gaa atg ata tgc atc Pro Gly Arg Asp Glu Glu Asp Leu Ala Asp Glu Met Ile Cys Ile 2150 2155 2160	6489
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Pro Leu Ser Gly Glu Gly Pro Thr Ser Gln Pro Asn Ser Ser Lys Gln	
35 40 45	
Thr Val Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys	
50 55 60	
Ala Ala Gln Thr Met Ser Thr Ser Ala Pro Pro Pro Val Gly Ser Leu	
65 70 75 80	
Ser Gln Arg Lys Arg Gln Gln Tyr Ala Lys Ser Lys Lys Gln Gly Asn	
85 90 95	
Ser Ser Asn Ser Arg Pro Ala Arg Ala Leu Phe Cys Leu Ser Leu Asn	
100 105 110	
Asn Pro Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe	
115 120 125	

Asp Ile Phe Ile Leu Leu Ala Ile Phe Ala Asn Cys Val Ala Leu Ala
 130 135 140

Ile Tyr Ile Pro Phe Pro Glu Asp Asp Ser Asn Ser Thr Asn His Asn
 145 150 155 160

Leu Glu Lys Val Glu Tyr Ala Phe Leu Ile Ile Phe Thr Val Glu Thr
 165 170 175

Phe Leu Lys Ile Ile Ala Tyr Gly Leu Leu Leu His Pro Asn Ala Tyr
 180 185 190

Val Arg Asn Gly Trp Asn Leu Leu Asp Phe Val Ile Val Ile Val Gly
 195 200 205

Leu Phe Ser Val Ile Leu Glu Gln Leu Thr Lys Glu Thr Glu Gly Gly
 210 215 220

Asn His Ser Ser Gly Lys Ser Gly Gly Phe Asp Val Lys Ala Leu Arg
 225 230 235 240

Ala Phe Arg Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser
 245 250 255

Leu Gln Val Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu
 260 265 270

His Ile Ala Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile
 275 280 285

Gly Leu Glu Leu Phe Ile Gly Lys Met His Lys Thr Cys Phe Phe Ala
 290 295 300

Asp Ser Asp Ile Val Ala Glu Glu Asp Pro Ala Pro Cys Ala Phe Ser
 305 310 315 320

Gly Asn Gly Arg Gln Cys Thr Ala Asn Gly Thr Glu Cys Arg Ser Gly
 325 330 335

Trp Val Gly Pro Asn Gly Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe
 340 345 350

Ala Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp
 355 360 365

Val Leu Tyr Trp Val Asn Asp Ala Ile Gly Trp Glu Trp Pro Trp Val
 370 375 380

Tyr Phe Val Ser Leu Ile Ile Leu Gly Ser Phe Phe Val Leu Asn Leu
 385 390 395 400

Val Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala
 405 410 415

Lys Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu
 420 425 430

Glu Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile
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 Asp Pro Glu Asn Glu Glu Gly Gly Glu Gly Lys Arg Asn Thr
 450 455 460
 Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ser
 465 470 475 480
 Gly Glu Gly Glu Asn Arg Gly Cys Cys Gly Ser Leu Trp Cys Trp Trp
 485 490 495
 Arg Arg Arg Gly Ala Ala Lys Ala Gly Pro Ser Gly Cys Arg Arg Trp
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 Gly Gln Ala Ile Ser Lys Ser Lys Leu Ser Arg Arg Trp Arg Arg Trp
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 Asn Arg Phe Asn Arg Arg Cys Arg Ala Ala Val Lys Ser Val Thr
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 Phe Tyr Trp Leu Val Ile Val Leu Val Phe Leu Asn Thr Leu Thr Ile
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 Ser Ser Glu His Tyr Asn Gln Pro Asp Trp Leu Thr Gln Ile Gln Asp
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 Ile Ala Asn Lys Val Leu Leu Ala Leu Phe Thr Cys Glu Met Leu Val
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 Lys Met Tyr Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn
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 Arg Phe Asp Cys Phe Val Val Cys Gly Gly Ile Thr Glu Thr Ile Leu
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 Val Glu Leu Glu Ile Met Ser Pro Leu Gly Ile Ser Val Phe Arg Cys
 625 630 635 640
 Val Arg Leu Leu Arg Ile Phe Lys Val Thr Arg His Trp Thr Ser Leu
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 Ser Asn Leu Val Ala Ser Leu Leu Asn Ser Met Lys Ser Ile Ala Ser
 660 665 670
 Leu Leu Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly
 675 680 685
 Met Gln Leu Phe Gly Gly Lys Phe Asn Phe Asp Glu Thr Gln Thr Lys
 690 695 700
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 Ala Ile Ala Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Asn Thr Ala
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 Ala Asn Ser Asp Asn Lys Val Thr Ile Asp Asp Tyr Arg Glu Glu Asp
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 Glu Asp Lys Asp Pro Tyr Pro Pro Cys Asp Val Pro Val Gly Glu Glu
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 Glu Glu Glu Glu Glu Asp Glu Pro Glu Val Pro Ala Gly Pro Arg
 850 855 860

 Pro Arg Arg Ile Ser Glu Leu Asn Met Lys Glu Lys Ile Ala Pro Ile
 865 870 875 880

 Pro Glu Gly Ser Ala Phe Phe Ile Leu Ser Lys Thr Asn Pro Ile Arg
 885 890 895

 Val Gly Cys His Lys Leu Ile Asn His His Ile Phe Thr Asn Leu Ile
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 Leu Val Phe Ile Met Leu Ser Ser Ala Ala Leu Ala Ala Glu Asp Pro
 915 920 925

 Ile Arg Ser His Ser Phe Arg Asn Thr Ile Leu Gly Tyr Phe Asp Tyr
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 Ala Phe Thr Ala Ile Phe Thr Val Glu Ile Leu Leu Lys Met Thr Thr
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 Phe Gly Ala Phe Leu His Lys Gly Ala Phe Cys Arg Asn Tyr Phe Asn
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 Leu Leu Asp Met Leu Val Val Gly Val Ser Leu Val Ser Phe Gly Ile
 980 985 990

 Gln Ser Ser Ala Ile Ser Val Val Lys Ile Leu Arg Val Leu Arg Val
 995 1000 1005

 Leu Arg Pro Leu Arg Ala Ile Asn Arg Ala Lys Gly Leu Lys His
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 Val Val Gln Cys Val Phe Val Ala Ile Arg Thr Ile Gly Asn Ile
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Met Ile Val Thr Thr Leu Leu Gln Phe Met Phe Ala Cys Ile Gly
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 Val Gln Leu Phe Lys Gly Lys Phe Tyr Arg Cys Thr Asp Glu Ala
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 Lys Ala Ile Asp Ser Asn Gly Glu Asn Ile Gly Pro Ile Tyr Asn
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 Glu Ile His Gly Tyr Phe Arg Asp Pro His Cys Leu Gly Glu Gln
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ccc aag aag gac att gta cag atc cag gca ggg ctg cg ^g acc att gag Pro Lys Asp Ile Val Gln Ile Gln Ala Gly Leu Arg Thr Ile Glu 915 920 925	5065
gaa gag gca gcc ccc gag atc tgt cgc acg gtc tca gga gac ctg gct Glu Glu Ala Ala Pro Glu Ile Cys Arg Thr Val Ser Gly Asp Leu Ala 930 935 940	5113
gct gag gag ctg gag aga gcc atg gtg gag gct gcg atg gag gag Ala Glu Glu Glu Leu Glu Arg Ala Met Val Glu Ala Ala Met Glu Glu 945 950 955 960	5161
gga ata ttc cgg agg act gga ggc ctg ttt ggc cag gtg gac aac ttc Gly Ile Phe Arg Arg Thr Gly Gly Leu Phe Gly Gln Val Asp Asn Phe 965 970 975	5209
ctg gaa agg acc aac tcc ctg ccc ccc gtc atg gcc aat cag aga ccc Leu Glu Arg Thr Asn Ser Leu Pro Pro Val Met Ala Asn Gln Arg Pro 980 985 990	5257
ctc cag ttt gct gag ata gag atg gaa gag atg gag tca cct gtc ttc Leu Gln Phe Ala Glu Ile Glu Met Glu Glu Met Glu Ser Pro Val Phe 995 1000 1005	5305
ttg gag gac ttc cca caa gat cca cgc acc aac ccc ctg gct cgt Leu Glu Asp Phe Pro Gln Asp Pro Arg Thr Asn Pro Leu Ala Arg 1010 1015 1020	5350
gcc aat acc aac aat gcc aac gcc aat gtc gcc tat ggc aac agc Ala Asn Thr Asn Asn Ala Asn Ala Asn Val Ala Tyr Gly Asn Ser 1025 1030 1035	5395
aac cat agc aac agc cat gtg ttt tcc agt gtc cac tat gaa agg Asn His Ser Asn Ser His Val Phe Ser Ser Val His Tyr Glu Arg 1040 1045 1050	5440
gag ttc cca gaa gag aca gag acg cct gct acc aga gga cga gcc Glu Phe Pro Glu Glu Thr Glu Thr Pro Ala Thr Arg Gly Arg Ala 1055 1060 1065	5485
ctt ggc caa ccc tgc agg gtc cnn nnn nnn nnn nnn nnn nnn nnn Leu Gly Gln Pro Cys Arg Val Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa 1070 1075 1080	5530
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gga ctg ctg acc cag agg gca atg ccc aga ggc cag gca cct cct Gly Leu Leu Thr Gln Arg Ala Met Pro Arg Gly Gln Ala Pro Pro 1190 1195 1200	5890

gcc ccc tgc cag tgc ccc agg	gtg gag tcc tcc atg	cct gag gac	5935
Ala Pro Cys Gln Cys Pro Arg	Val Glu Ser Ser Met	Pro Glu Asp	
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aga aag agc tcc aca cca ggg	tct ctt cat gag gag	aca ccc cac	5980
Arg Lys Ser Ser Thr Pro Gly	Ser Leu His Glu Glu	Thr Pro His	
1220	1225	1230	
agc agg agc acc agg gag aat	act tcc agg tgc tca	gca cca gct	6025
Ser Arg Ser Thr Arg Glu Asn	Thr Ser Arg Cys Ser	Ala Pro Ala	
1235	1240	1245	
aca gcc ctg ctg atc caa aag	gct ctg gtt cga ggg	ggc ctg ggc	6070
Thr Ala Leu Leu Ile Gln Lys	Ala Leu Val Arg Gly	Gly Leu Gly	
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acc ttg gca gct gat gca aac	ttc atc atg gca aca	ggc cag gcc	6115
Thr Leu Ala Ala Asp Ala Asn	Phe Ile Met Ala Thr	Gly Gln Ala	
1265	1270	1275	
ctg gca gat gcc tgc caa atg	gaa cca gag gaa gtg	gag atc atg	6160
Leu Ala Asp Ala Cys Gln Met	Glu Pro Glu Glu Val	Glu Ile Met	
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gca aca gag cta ctg aaa gga	cga gag gcc cca gag	ggc atg gcc	6205
Ala Thr Glu Leu Leu Lys Gly	Arg Glu Ala Pro Glu	Gly Met Ala	
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Ser Ser Leu Gly Cys Leu Asn	Leu Gly Ser Ser Leu	Gly Ser Leu	
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gac caa cac cag ggc tcc cag	gag acc ctt att cct	cca agg ctg	6295
Asp Gln His Gln Gly Ser Gln	Glu Thr Leu Ile Pro	Pro Arg Leu	
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ggggaaagttg ctggggtgga	gaagggtctag cccaccgcag	cagcctccct ccctctcagc	6408
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<220>			
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<223> The 'Xaa' at location 233 stands for Lys, Asn, Arg, Ser, Thr, Ile, Met, Glu, Asp, Gly, Ala, Val, Gln, His, Pro, Leu, a stop codon, Tyr, Trp, Cys, or Phe.			

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<220>
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<223> The 'Xaa' at location 234 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<220>
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<220>
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<220>
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<220>
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<220>
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<223> The 'Xaa' at location 244 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 245 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<220>
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<220>
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<220>
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<220>
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<220>
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<220>
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<220>
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<220>
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<220>
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<220>
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<220>
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<220>
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<220>
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<220>
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<220>
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<220>
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<220>
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<220>
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<220>
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<220>
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<220>
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<220>
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<220>
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<220>
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<223> The 'Xaa' at location 284 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 296 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
<221> misc_feature
<222> (297)..(297)
<223> The 'Xaa' at location 297 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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      Tyr, Trp, Cys, or Phe.

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<220>
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<223> The 'Xaa' at location 298 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 299 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 300 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 301 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 302 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<220>
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<223> The 'Xaa' at location 304 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 305 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 306 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 307 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
<221> misc_feature
<222> (308)..(308)
<223> The 'Xaa' at location 308 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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      Tyr, Trp, Cys, or Phe.

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<220>
<221> misc_feature
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<220>
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<223> The 'Xaa' at location 310 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<220>
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<223> The 'Xaa' at location 312 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
<221> misc_feature
<222> (313)..(313)
<223> The 'Xaa' at location 313 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
<221> misc_feature
<222> (314)..(314)
<223> The 'Xaa' at location 314 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 315 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
<221> misc_feature
<222> (316)..(316)
<223> The 'Xaa' at location 316 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<222> (317)..(317)
<223> The 'Xaa' at location 317 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<222> (318)..(318)
<223> The 'Xaa' at location 318 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<222> (319)..(319)
<223> The 'Xaa' at location 319 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 321 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<220>
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<223> The 'Xaa' at location 325 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<222> (326)..(326)
<223> The 'Xaa' at location 326 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<222> (327)..(327)
<223> The 'Xaa' at location 327 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<223> The 'Xaa' at location 328 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<222> (329)..(329)
<223> The 'Xaa' at location 329 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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      Tyr, Trp, Cys, or Phe.

<220>
<221> misc_feature
<222> (330)..(330)
<223> The 'Xaa' at location 330 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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      Tyr, Trp, Cys, or Phe.

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<220>
<221> misc_feature
<222> (331)..(331)
<223> The 'Xaa' at location 331 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
<221> misc_feature
<222> (1076)..(1076)
<223> The 'Xaa' at location 1076 stands for Gln, His, Arg, Pro, or Leu.

<220>
<221> misc_feature
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<223> The 'Xaa' at location 1077 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<222> (1078)..(1078)
<223> The 'Xaa' at location 1078 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 1079 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<222> (1080)..(1080)
<223> The 'Xaa' at location 1080 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<223> The 'Xaa' at location 1081 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 1082 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 1083 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<222> (1085)..(1085)
<223> The 'Xaa' at location 1085 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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      Tyr, Trp, Cys, or Phe.

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<220>
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<223> The 'Xaa' at location 1086 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 1087 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<222> (1088)..(1088)
<223> The 'Xaa' at location 1088 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<222> (1089)..(1089)
<223> The 'Xaa' at location 1089 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<223> The 'Xaa' at location 1090 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
<221> misc_feature
<222> (1091)..(1091)
<223> The 'Xaa' at location 1091 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
<221> misc_feature
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<223> The 'Xaa' at location 1092 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
<221> misc_feature
<222> (1093)..(1093)
<223> The 'Xaa' at location 1093 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 1094 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 1095 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
<221> misc_feature
<222> (1096)..(1096)
<223> The 'Xaa' at location 1096 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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      Tyr, Trp, Cys, or Phe.

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<220>
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<223> The 'Xaa' at location 1097 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
<221> misc_feature
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<223> The 'Xaa' at location 1098 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 1099 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<220>
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<220>
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<222> (1102)..(1102)
<223> The 'Xaa' at location 1102 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 1103 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<222> (1104)..(1104)
<223> The 'Xaa' at location 1104 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
<221> misc_feature
<222> (1105)..(1105)
<223> The 'Xaa' at location 1105 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<222> (1106)..(1106)
<223> The 'Xaa' at location 1106 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
<221> misc_feature
<222> (1107)..(1107)
<223> The 'Xaa' at location 1107 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<223> The 'Xaa' at location 1108 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
<221> misc_feature
<222> (1109)..(1109)
<223> The 'Xaa' at location 1109 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<222> (1110)..(1110)
<223> The 'Xaa' at location 1110 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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      Tyr, Trp, Cys, or Phe.

<220>
<221> misc_feature
<222> (1111)..(1111)
<223> The 'Xaa' at location 1111 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<222> (1112)..(1112)
<223> The 'Xaa' at location 1112 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<222> (1113)..(1113)
<223> The 'Xaa' at location 1113 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<222> (1114)..(1114)
<223> The 'Xaa' at location 1114 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<222> (1115)..(1115)
<223> The 'Xaa' at location 1115 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<222> (1116)..(1116)
<223> The 'Xaa' at location 1116 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<223> The 'Xaa' at location 1117 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<222> (1118)..(1118)
<223> The 'Xaa' at location 1118 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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      Tyr, Trp, Cys, or Phe.

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<220>
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<223> The 'Xaa' at location 1119 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<222> (1120)..(1120)
<223> The 'Xaa' at location 1120 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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      Tyr, Trp, Cys, or Phe.

<220>
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<222> (1121)..(1121)
<223> The 'Xaa' at location 1121 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
<221> misc_feature
<222> (1122)..(1122)
<223> The 'Xaa' at location 1122 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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      Tyr, Trp, Cys, or Phe.

<220>
<221> misc_feature
<222> (1123)..(1123)
<223> The 'Xaa' at location 1123 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 1124 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<220>
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<222> (1126)..(1126)
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<220>
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<222> (1127)..(1127)
<223> The 'Xaa' at location 1127 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 1129 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 1130 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<222> (1131)..(1131)
<223> The 'Xaa' at location 1131 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 1132 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<222> (1133)..(1133)
<223> The 'Xaa' at location 1133 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 1134 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 1135 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<220>
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<223> The 'Xaa' at location 1140 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<220>
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<223> The 'Xaa' at location 1142 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<220>
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<220>
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<223> The 'Xaa' at location 1146 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<223> The 'Xaa' at location 1147 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 1148 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<223> The 'Xaa' at location 1149 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<220>
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<220>
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<223> The 'Xaa' at location 1154 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<220>
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<223> The 'Xaa' at location 1157 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 1161 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<222> (1162)..(1162)
<223> The 'Xaa' at location 1162 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 1163 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 1164 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
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<223> The 'Xaa' at location 1165 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<223> The 'Xaa' at location 1167 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<223> The 'Xaa' at location 1168 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<223> The 'Xaa' at location 1169 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<223> The 'Xaa' at location 1170 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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35          40          45

Asp Pro Tyr Pro Ser Ala Asp Phe Pro Gly Asp Asp Glu Glu Asp Glu
50          55          60

Pro Glu Ile Pro Leu Ser Pro Arg Pro Arg Pro Leu Ala Glu Leu Gln
65          70          75          80

Leu Lys Glu Lys Ala Val Pro Ile Pro Glu Ala Ser Ser Phe Phe Ile
85          90          95

Phe Ser Pro Thr Asn Lys Ile Arg Val Leu Cys His Arg Ile Val Asn
100         105         110

Ala Thr Trp Phe Thr Asn Phe Ile Leu Leu Phe Ile Leu Leu Ser Ser
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Ala Ala Leu Ala Ala Glu Asp Pro Ile Arg Ala Asp Ser Met Arg Asn
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Gln Ile Leu Lys His Phe Asp Ile Gly Phe Thr Ser Val Phe Thr Val
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Glu Ile Val Leu Lys Met Thr Thr Tyr Gly Ala Phe Leu His Lys Gly
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Ser Phe Cys Arg Asn Tyr Phe Asn Met Leu Asp Leu Leu Val Val Ala
180         185         190

Val Ser Leu Ile Ser Met Gly Leu Glu Ser Ser Ala Ile Ser Val Val
195         200         205

Lys Ile Leu Arg Val Leu Arg Val Leu Arg Pro Leu Arg Ala Ile Asn
210         215         220

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Arg Ala Lys Gly Leu Lys Val Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
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 Xaa
 245 250 255

 Xaa
 260 265 270

 Xaa
 275 280 285

 Xaa
 290 295 300

 Xaa
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 Arg Glu Trp Val His Ser Asp Phe His Phe Asp Asn Val Leu Ser Ala
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 Cys Tyr Ile Pro Lys Asn Pro Tyr Gln Tyr Gln Val Trp Tyr Ile Val
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 Thr Ser Ser Tyr Phe Glu Tyr Leu Met Phe Ala Leu Ile Met Leu Asn
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 Thr Ile Cys Leu Gly Met Gln His Tyr Asn Gln Ser Glu Gln Met Asn
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 His Ile Ser Asp Ile Leu Asn Val Ala Phe Thr Ile Ile Phe Thr Leu
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Glu Met Ile Leu Lys Leu Met Ala Phe Lys Ala Arg Gly Tyr Phe Gly
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Asp Pro Trp Asn Val Phe Asp Phe Leu Ile Val Ile Gly Ser Ile Ile
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Asp Val Ile Leu Ser Glu Ile Asp Thr Phe Leu Ala Ser Ser Gly Gly
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Leu Tyr Cys Leu Gly Gly Cys Gly Asn Val Asp Pro Asp Glu Ser
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Ala Arg Ile Ser Ser Ala Phe Phe Arg Leu Phe Arg Val Met Arg Leu
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Ile Lys Leu Leu Ser Arg Ala Glu Gly Val Arg Thr Leu Leu Trp Thr
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Phe Ile Lys Ser Phe Gln Ala Leu Pro Tyr Val Ala Leu Leu Ile Val
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Met Leu Phe Phe Ile Tyr Ala Val Ile Gly Met Gln Met Phe Gly Lys
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Ile Ala Leu Val Asp Gly Thr Gln Ile Asn Arg Asn Asn Phe Gln
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Thr Phe Pro Gln Ala Val Leu Leu Phe Arg Cys Ala Thr Gly Glu
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Ala Trp Gln Glu Ile Leu Ala Cys Ser Tyr Gly Lys Leu Cys Asp
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Pro Glu Ser Asp Tyr Ala Pro Gly Glu Glu Tyr Thr Cys Gly Thr Asn
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Val Ile Asn Leu Phe Val Ala Val Ile Met Asp Asn Phe Asp Tyr Leu
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Thr Arg Asp Trp Ser Ile Leu Gly Pro His His Leu Asp Glu Phe Lys
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Ala Ile Trp Ala Glu Tyr Asp Pro Glu Ala Lys Gly Arg Ile Lys His
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Leu Asp Val Val Thr Leu Leu Arg Arg Ile Gln Pro Pro Leu Gly Phe
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Gly Lys Phe Cys Pro His Arg Val Ala Cys Lys Arg Leu Val Gly Met
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Asn Met Pro Leu Asn Ser Asp Gly Thr Val Thr Phe Asn Ala Thr Leu
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Phe Ala Leu Val Arg Thr Ala Leu Lys Ile Lys Thr Glu Gly Asn Phe
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 Glu Gln Ala Asn Glu Glu Leu Arg Ala Ile Ile Lys Lys Ile Trp Lys
 850 855 860

 Arg Thr Ser Met Lys Leu Leu Asp Gln Val Ile Pro Pro Ile Gly Asp
 865 870 875 880

 Asp Glu Val Thr Val Gly Lys Phe Tyr Ala Thr Phe Leu Ile Gln Glu
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 His Phe Arg Lys Phe Met Lys Arg Gln Glu Glu Tyr Tyr Gly Tyr Arg
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 Pro Lys Lys Asp Ile Val Gln Ile Gln Ala Gly Leu Arg Thr Ile Glu
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 Gly Ile Phe Arg Arg Thr Gly Gly Leu Phe Gly Gln Val Asp Asn Phe
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 Asn His Ser Asn Ser His Val Phe Ser Ser Val His Tyr Glu Arg
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 Xaa
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 Xaa
 1100 1105 1110

 Xaa
 1115 1120 1125

Xaa
 1130 1135 1140

Xaa
 1145 1150 1155

Xaa
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Gly Leu Leu Thr Gln Arg Ala Met Pro Arg Gly Gln Ala Pro Pro
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Ala Pro Cys Gln Cys Pro Arg Val Glu Ser Ser Met Pro Glu Asp
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Arg Lys Ser Ser Thr Pro Gly Ser Leu His Glu Glu Thr Pro His
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Ser Arg Ser Thr Arg Glu Asn Thr Ser Arg Cys Ser Ala Pro Ala
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Leu Ala Asp Ala Cys Gln Met Glu Pro Glu Glu Val Glu Ile Met
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Ala Thr Glu Leu Leu Lys Gly Arg Glu Ala Pro Glu Gly Met Ala
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 gacagcctca gccagcctag tccccaaggc gggggcattt gggacacagg gaaggaaaag 180

cactgggtg gggagcagg agaaagccag atcccaggg aagcc atg gag cca tcc Met Glu Pro Ser 1	237
tca ccc cag gat gaa ggc ctg agg aag aaa cag ccc aag aag cca gtt Ser Pro Gln Asp Glu Gly Leu Arg Lys Lys Gln Pro Lys Lys Pro Val 5 10 15 20	285
cct gag att ctg cca agg cca ccc cgg gct ttg ttc tgc ctg acc ctg Pro Glu Ile Leu Pro Arg Pro Arg Ala Leu Phe Cys Leu Thr Leu 25 30 35	333
gag aac ccc ctg agg aag gcc tgc atc agc att gta gaa tgg aag ccc Glu Asn Pro Leu Arg Lys Ala Cys Ile Ser Ile Val Glu Trp Lys Pro 40 45 50	381
ttc gag acg atc atc ttg ctc acc atc ttt gcc aat tgt gtg gcc ctg Phe Glu Thr Ile Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu 55 60 65	429
gcc gtg tac ctg ccc atg ccg gaa gat gac aac aac tct ctg aac ctc Ala Val Tyr Leu Pro Met Pro Glu Asp Asp Asn Asn Ser Leu Asn Leu 70 75 80	477
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gcc gcc atg aag atc att gcc tac ggc ttc tta ttc cac cag gac gct Ala Ala Met Lys Ile Ile Ala Tyr Gly Phe Leu Phe His Gln Asp Ala 105 110 115	573
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aca gcc cca atg agc agc aaa gga gcc ggc ttg gat gtc aag gcc ctc Thr Ala Pro Met Ser Ser Lys Gly Ala Gly Leu Asp Val Lys Ala Leu 150 155 160	717
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cac cac aac cag ccg cac tgg ctg acc cgt ttg caa gac att gcc aac His His Asn Gln Pro His Trp Leu Thr Arg Leu Gln Asp Ile Ala Asn 455 460 465	1629
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ccc atc cgg gct gat tcc atg aga aat cag atc ctt aaa cac ttt gac Pro Ile Arg Ala Asp Ser Met Arg Asn Gln Ile Leu Lys His Phe Asp 825 830 835	2733
atc ggg ttc acc tct gtc ttc act gtg gag att gtc ctc aag atg acg Ile Gly Phe Thr Ser Val Phe Thr Val Glu Ile Val Leu Lys Met Thr 840 845 850	2781
acc tac gga gcc ttc ctg cac aag ggt tcc ttc tgc cgc aat tac ttc Thr Tyr Gly Ala Phe Leu His Lys Gly Ser Phe Cys Arg Asn Tyr Phe 855 860 865	2829
aac atg ctg gac ctg ctg gtg gtg gcc gtg tcc ctc atc tcc atg gga Asn Met Leu Asp Leu Leu Val Val Ala Val Ser Leu Ile Ser Met Gly 870 875 880	2877

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Leu Glu Ser Ser Ala Ile Ser Val Val Lys Ile Leu Arg Val Leu Arg	
885 890 895 900 905 910 915	
gtg ctc cga cca ctc aga gcc atc aac aga gcc aag ggg ttg aag cac	2973
Val Leu Arg Pro Leu Arg Ala Ile Asn Arg Ala Lys Gly Leu Lys His	
920 925 930 935 940 945	
gtg gct agg tgc atg ttc gtg gcc atc agc acc atc ggg aac atc gtg	3021
Val Ala Arg Cys Met Phe Val Ala Ile Ser Thr Ile Gly Asn Ile Val	
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Leu Val Thr Thr Leu Leu Gln Phe Met Phe Ala Cys Ile Gly Val Gln	
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Leu Phe Lys Gly Lys Phe Phe Arg Cys Thr Asp Leu Ser Lys Met Thr	
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Glu Glu Glu Cys Arg Gly Tyr Tyr Tyr Val Tyr Lys Asp Gly Asp Pro	
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Met Gln Ile Glu Leu Arg His Arg Glu Trp Val His Ser Asp Phe His	
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Phe Asp Asn Val Leu Ser Ala Met Met Ser Leu Phe Thr Val Ser	
1000 1005 1010	
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Thr Phe Glu Gly Trp Pro Gln Leu Leu Tyr Lys Ala Ile Asp Ser	
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Asn Ala Glu Asp Val Gly Pro Ile Tyr Asn Asn Arg Val Glu Met	
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Ala Ile Phe Phe Ile Ile Tyr Ile Ile Leu Ile Ala Phe Phe Met	
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Met Asn Ile Phe Val Gly Phe Val Ile Val Thr Phe Gln Glu Gln	
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Gly Glu Thr Glu Tyr Lys Asn Cys Glu Leu Asp Lys Asn Gln Arg	
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Gln Cys Val Gln Tyr Ala Leu Lys Ala Arg Pro Leu Arg Cys Tyr	
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Ile Pro Lys Asn Pro Tyr Gln Tyr Gln Val Trp Tyr Ile Val Thr	
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tcc tcc tac ttt gaa tac ctg atg ttt gcc ctc atc atg ctc aac	3618
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acc atc tgc ctc ggc atg cag cac tac aac cag tcg gag cag atg	3663
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Thr Leu Glu Met Ile Leu Lys Leu Met Ala Phe Lys Ala Arg Gly	
1165 1170 1175	

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Tyr Phe Gly Asn Pro Trp Asn Val Phe	Asp Phe Leu Ile Val Ile	
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ggc agc atc att gat gtc atc ctc agt	gag atc gac act ttc ctg	3843
Gly Ser Ile Ile Asp Val Ile Leu Ser	Glu Ile Asp Thr Phe Leu	
1195	1200	1205
gcc tcc agc ggg gga ctg tat tgc ctg	ggt gga ggc tgc ggg aac	3888
Ala Ser Ser Gly Gly Leu Tyr Cys Leu	Gly Gly Gly Cys Gly Asn	
1210	1215	1220
gtt gac cca gat gag agt gcc cgc atc	tcc agc gcc ttc ttc cgc	3933
Val Asp Pro Asp Glu Ser Ala Arg Ile	Ser Ser Ala Phe Phe Arg	
1225	1230	1235
ctg ttc cgt gtc atg agg ctg atc aag	ctg ctg agc cgg gca gaa	3978
Leu Phe Arg Val Met Arg Leu Ile Lys	Leu Leu Ser Arg Ala Glu	
1240	1245	1250
gga gtg cga acc ctc ctg tgg acg ttc	atc aag tcc ttc cag gcc	4023
Gly Val Arg Thr Leu Leu Trp Thr Phe	Ile Lys Ser Phe Gln Ala	
1255	1260	1265
cta ccc tac gtg gct ctg ctc atc gtc	atg ctc ttc ttc atc tac	4068
Leu Pro Tyr Val Ala Leu Leu Ile Val	Met Leu Phe Phe Ile Tyr	
1270	1275	1280
gct gtc atc ggc atg cag atg ttt ggg	aag atc gcc ttg gtg gat	4113
Ala Val Ile Gly Met Gln Met Phe Gly	Lys Ile Ala Leu Val Asp	
1285	1290	1295
ggg acc caa ata aac cgg aac aac aac	ttc cag acc ttc cca caa	4158
Gly Thr Gln Ile Asn Arg Asn Asn Asn	Phe Gln Thr Phe Pro Gln	
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gct gtg cta ctg ctc ttc agg tgt gca	aca ggt gag gcc tgg cag	4203
Ala Val Leu Leu Leu Phe Arg Cys Ala	Thr Gly Glu Ala Trp Gln	
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Glu Ile Leu Leu Ala Cys Ser Tyr Gly	Lys Leu Cys Asp Pro Glu	
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Ser Asp Tyr Ala Pro Gly Glu Tyr	Thr Cys Gly Thr Asn Phe	
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gca tac tac tac ttc atc agc ttc tac	atg ctc tgt gcc ttc ctg	4338
Ala Tyr Tyr Tyr Phe Ile Ser Phe Tyr	Met Leu Cys Ala Phe Leu	
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gtc atc aac ctc ttt gtg gct gtc atc	atg gac aat ttt gac tac	4383
Val Ile Asn Leu Phe Val Ala Val Ile	Met Asp Asn Phe Asp Tyr	
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ctc acc cgg gac tgg tcc atc ctg ggc	cct cat cac ctg gat gag	4428
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Phe Lys Ala Ile Trp Ala Glu Tyr Asp	Pro Glu Ala Lys Gly Arg	
1405	1410	1415
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Ile Lys His Leu Asp Val Val Thr Leu	Leu Arg Arg Ile Gln Pro	
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cct ctg ggc ttt ggg aag ttc tgc cca	cat cgg gta gct tgt aag	4563
Pro Leu Gly Phe Gly Lys Phe Cys Pro	His Arg Val Ala Cys Lys	
1435	1440	1445
cgx ctg gtg ggc atg aac atg ccc ctg	aac agc gac ggc aca gtc	4608
Arg Leu Val Gly Met Asn Met Pro Leu	Asn Ser Asp Gly Thr Val	
1450	1455	1460

acc ttc aat gcc	aca ctc ttt gcc ctg	gtc cgc acg gca ctc	aag	4653
Thr Phe Asn Ala	Thr Leu Phe Ala Leu	Val Arg Thr Ala Leu	Lys	
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Ile Lys Thr Glu	Gly Asn Phe Glu Gln	Ala Asn Glu Glu Leu	Arg	
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Ala Ile Ile Lys	Lys Ile Trp Lys Arg	Thr Ser Met Lys Leu	Leu	
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Asp Gln Val Ile	Pro Pro Ile Gly Asp	Asp Glu Val Thr Val	Gly	
1510	1515	1520		
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Lys Phe Tyr Ala	Thr Phe Leu Ile Gln	Glu His Phe Arg Lys	Phe	
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Met Lys Arg Gln	Glu Glu Tyr Tyr Gly	Tyr Arg Pro Lys Lys	Asp	
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Ala Pro Glu Ile	Cys Arg Thr Val Ser	Gly Asp Leu Ala Ala	Glu	
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Glu Glu Leu Glu	Arg Ala Met Val Glu	Ala Ala Met Glu Glu	Gly	
1585	1590	1595		
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Ile Phe Arg Arg	Thr Gly Gly Leu Phe	Gly Gln Val Asp Asn	Phe	
1600	1605	1610		
ctg gaa agg acc	aac tcc ctg ccc cct	gtc atg gcc aat cag	aga	5103
Leu Glu Arg Thr	Asn Ser Leu Pro Pro	Val Met Ala Asn Gln	Arg	
1615	1620	1625		
ccc ctc cag ttt	gct gag ata gag atg	gaa gag atg gag tca	cct	5148
Pro Leu Gln Phe	Ala Glu Ile Glu Met	Glu Glu Met Glu Ser	Pro	
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Val Phe Leu Glu	Asp Phe Pro Gln Asp	Pro Arg Thr Asn Pro	Leu	
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gct cgt gcc aat	acc aac aat gcc aac	gcc aat gtc gcc tat	gcg	5238
Ala Arg Ala Asn	Thr Asn Asn Ala Asn	Ala Asn Val Ala Tyr	Ala	
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Asn Ser Asn His	Ser Asn Ser His Val	Phe Ser Ser Val His	Tyr	
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Glu Arg Glu Phe	Pro Glu Glu Thr Glu	Thr Pro Ala Thr Arg	Gly	
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Arg Ala Leu Gly	Gln Pro Cys Arg Ser	Leu Gly Pro His Ser	Lys	
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Pro Arg Gly Gln	Ala Pro Pro Ala Pro	Cys Gln Cys Pro Arg	Val	
1735	1740	1745		

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Glu Ser Ser Met Pro Glu Asp Arg Lys	Ser Ser Thr Pro Gly	Ser	
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ctt cat gag gag aca ccc cac agc agg	agc acc agg gag aat	act	5553
Leu His Glu Glu Thr Pro His Ser Arg	Ser Thr Arg Glu Asn	Thr	
1765	1770	1775	
tcc agg tgc tca gca cca gct aca gcc	ctg ctg atc caa aag	gct	5598
Ser Arg Cys Ser Ala Pro Ala Thr Ala	Leu Leu Ile Gln Lys	Ala	
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Leu Val Arg Gly Gly Leu Gly Thr	Leu Ala Ala Asp Ala Asn	Phe	
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Ile Met Ala Thr Gly Gln Ala Leu Gly	Asp Ala Cys Gln Met	Glu	
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Pro Glu Glu Val Glu Ile Met Ala Thr	Glu Leu Leu Lys Gly	Arg	
1825	1830	1835	
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Glu Ala Pro Asp Gly Met Ala Ser Ser	Leu Gly Cys Leu Asn	Leu	
1840	1845	1850	
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Gly Ser Ser Leu Gly Ser Leu Asp Gln	His Gln Gly Ser Gln	Glu	
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Thr Leu Ile Pro Pro Arg Leu			
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Cys Leu Thr Leu Glu Asn Pro Leu Arg Lys Ala Cys Ile Ser Ile Val			
35	40	45	
Glu Trp Lys Pro Phe Glu Thr Ile Ile Leu Leu Thr Ile Phe Ala Asn			
50	55	60	
Cys Val Ala Leu Ala Val Tyr Leu Pro Met Pro Glu Asp Asp Asn Asn			
65	70	75	80
Ser Leu Asn Leu Gly Leu Glu Lys Leu Glu Tyr Phe Phe Leu Ile Val			
85	90	95	
Phe Ser Ile Glu Ala Ala Met Lys Ile Ile Ala Tyr Gly Phe Leu Phe			
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65 70 75	
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80 85 90	
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95 100 105	
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110 115 120	
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145 150 155	
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225 230 235	

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Lys	Arg Leu Val Ala Met	Asn Met Pro Leu Asn	Ser Asp Gly Thr	
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Val	Met Phe Asn Ala Thr	Leu Phe Ala Leu Val	Arg Thr Ala Leu	
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Lys	Ile Lys Thr Glu Gly	Asn Leu Glu Gln Ala	Asn Glu Glu Leu	
1170	1175	1180		
cgg	gct gtg ata aag aaa	att tgg aag aaa acc	agc atg aaa tta	5112
Arg	Ala Val Ile Lys Lys	Ile Trp Lys Lys Thr	Ser Met Lys Leu	
1185	1190	1195		
ctt	gac caa gtt gtc cct	cca gct ggt gat gat	gag gta acc gtg	5157
Leu	Asp Gln Val Val Pro	Pro Ala Gly Asp Asp	Glu Val Thr Val	
1200	1205	1210		
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Gly	Lys Phe Tyr Ala Thr	Phe Leu Ile Gln Asp	Tyr Phe Arg Lys	
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Phe	Lys Lys Arg Lys Glu	Gln Gly Leu Val Gly	Lys Tyr Pro Ala	
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Lys	Asn Thr Thr Ile Ala	Leu Gln Ala Gly Leu	Arg Thr Leu His	
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Asp	Asp Glu Pro Glu Glu	Thr Lys Arg Glu Glu	Glu Asp Asp Val	
1275	1280	1285		
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Phe	Lys Arg Asn Gly Ala	Leu Leu Gly Asn His	Val Asn His Val	
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Asn	Ser Asp Arg Arg Asp	Ser Leu Gln Gln Thr	Asn Thr Thr His	
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Arg	Pro Leu His Val Gln	Arg Pro Ser Ile Pro	Pro Ala Ser Asp	
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Thr	Glu Lys Pro Leu Phe	Pro Pro Ala Gly Asn	Ser Val Cys His	
1335	1340	1345		
aac	cat cat aac cat aat	tcc ata gga aag caa	gtt ccc acc tca	5607
Asn	His His Asn His Asn	Ser Ile Gly Lys Gln	Val Pro Thr Ser	
1350	1355	1360		
aca	aat gcc aat ctc aat	aat gcc aat atg tcc	aaa gct gcc cat	5652
Thr	Asn Ala Asn Leu Asn	Asn Ala Asn Met Ser	Lys Ala Ala His	
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Gly	Lys Arg Pro Ser Ile	Gly Asn Leu Glu His	Val Ser Glu Asn	
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ggg	cat cat tct tcc cac	aag cat gac cgg gag	cct cag aga agg	5742
Gly	His His Ser Ser His	Lys His Asp Arg Glu	Pro Gln Arg Arg	
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Ser	Ser Val Lys Arg Thr	Arg Tyr Tyr Glu Thr	Tyr Ile Arg Ser	
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Gly	Phe	Leu	Glu	Asp	Asp	Asp	Ser	Pro	Val	Cys	Tyr	Asp	Ser	Arg	
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Arg	Ser	Pro	Arg	Arg	Arg	Leu	Leu	Pro	Pro	Thr	Pro	Ala	Ser	His	
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Arg	Arg	Ser	Ser	Phe	Asn	Phe	Glu	Cys	Leu	Arg	Arg	Gln	Ser	Ser	
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Gln	Glu	Glu	Val	Pro	Ser	Ser	Pro	Ile	Phe	Pro	His	Arg	Thr	Ala	
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Leu	Asp	Ser	Ser	Lys	Ala	Gln	Lys	Tyr	Ser	Pro	Ser	His	Ser	Thr	
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Thr	Pro	Cys	Tyr	Thr	Pro	Leu	Ile	Gln	Val	Glu	Gln	Ser	Glu	Ala	
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Thr	Lys	His	Glu	Ile	Ala	Asp	Ala	Cys	Asp	Leu	Thr	Ile	Asp	Glu	
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Pro	Gly	Arg	Asp	Glu	Glu	Asp	Leu	Ala	Asp	Glu	Met	Ile	Cys	Ile	
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1770															
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<223> The 'Xaa' at location 467 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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      Tyr, Trp, Cys, or Phe.

<220>
<221> misc_feature
<222> (468)..(468)
<223> The 'Xaa' at location 468 stands for Lys, Asn, Arg, Ser, Thr, Ile,
      Met, Glu, Asp, Gly, Ala, Val, Gln, His, Pro, Leu, a stop codon,
      Tyr, Trp, Cys, or Phe.

<220>
<221> misc_feature
<222> (469)..(469)
<223> The 'Xaa' at location 469 stands for Lys, Asn, Arg, Ser, Thr, Ile,
      Met, Glu, Asp, Gly, Ala, Val, Gln, His, Pro, Leu, a stop codon,
      Tyr, Trp, Cys, or Phe.

<220>
<221> misc_feature
<222> (470)..(470)
<223> The 'Xaa' at location 470 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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      Tyr, Trp, Cys, or Phe.

<220>
<221> misc_feature
<222> (471)..(471)
<223> The 'Xaa' at location 471 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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      Tyr, Trp, Cys, or Phe.

<220>
<221> misc_feature
<222> (472)..(472)
<223> The 'Xaa' at location 472 stands for Lys, Asn, Arg, Ser, Thr, Ile,
      Met, Glu, Asp, Gly, Ala, Val, Gln, His, Pro, Leu, a stop codon,
      Tyr, Trp, Cys, or Phe.

<220>
<221> misc_feature
<222> (473)..(473)
<223> The 'Xaa' at location 473 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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      Tyr, Trp, Cys, or Phe.

<220>
<221> misc_feature
<222> (474)..(474)
<223> The 'Xaa' at location 474 stands for Lys, Asn, Arg, Ser, Thr, Ile,
      Met, Glu, Asp, Gly, Ala, Val, Gln, His, Pro, Leu, a stop codon,
      Tyr, Trp, Cys, or Phe.

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<220>
<221> misc_feature
<222> (475)..(475)
<223> The 'Xaa' at location 475 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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<220>
<221> misc_feature
<222> (476)..(476)
<223> The 'Xaa' at location 476 stands for Lys, Asn, Arg, Ser, Thr, Ile,
      Met, Glu, Asp, Gly, Ala, Val, Gln, His, Pro, Leu, a stop codon,
      Tyr, Trp, Cys, or Phe.

<220>
<221> misc_feature
<222> (477)..(477)
<223> The 'Xaa' at location 477 stands for Lys, Asn, Arg, Ser, Thr, Ile,
      Met, Glu, Asp, Gly, Ala, Val, Gln, His, Pro, Leu, a stop codon,
      Tyr, Trp, Cys, or Phe.

<220>
<221> misc_feature
<222> (478)..(478)
<223> The 'Xaa' at location 478 stands for Lys, Asn, Arg, Ser, Thr, Ile,
      Met, Glu, Asp, Gly, Ala, Val, Gln, His, Pro, Leu, a stop codon,
      Tyr, Trp, Cys, or Phe.

<220>
<221> misc_feature
<222> (479)..(479)
<223> The 'Xaa' at location 479 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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      Tyr, Trp, Cys, or Phe.

<220>
<221> misc_feature
<222> (480)..(480)
<223> The 'Xaa' at location 480 stands for Lys, Asn, Arg, Ser, Thr, Ile,
      Met, Glu, Asp, Gly, Ala, Val, Gln, His, Pro, Leu, a stop codon,
      Tyr, Trp, Cys, or Phe.

<220>
<221> misc_feature
<222> (481)..(481)
<223> The 'Xaa' at location 481 stands for Lys, Asn, Arg, Ser, Thr, Ile,
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      Tyr, Trp, Cys, or Phe.

<220>
<221> misc_feature
<222> (482)..(482)
<223> The 'Xaa' at location 482 stands for Lys, Asn, Arg, Ser, Thr, Ile,
      Met, Glu, Asp, Gly, Ala, Val, Gln, His, Pro, Leu, a stop codon,
      Tyr, Trp, Cys, or Phe.

<220>
<221> misc_feature
<222> (1516)..(6834)
<223> n is dATP, dCTP, dGTP, or dTTP; Xaa is any amino acid

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Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ser Gly
1           5           10          15

Glu Gly Glu Asn Arg Gly Cys Cys Gly Ser Leu Trp Cys Trp Trp Arg
20            25            30

Arg Arg Gly Ala Ala Lys Ala Gly Pro Ser Gly Cys Arg Arg Trp Gly
35            40            45

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Gln Ala Ile Ser Lys Ser Lys Leu Ser Arg Arg Trp Arg Arg Trp Asn
 50 55 60

Arg Phe Asn Arg Arg Arg Cys Arg Ala Ala Val Lys Ser Val Thr Phe
 65 70 75 80

Tyr Trp Leu Val Ile Val Leu Val Phe Leu Asn Thr Leu Thr Ile Ser
 85 90 95

Ser Glu His Tyr Asn Gln Pro Asp Trp Leu Thr Gln Ile Gln Asp Met
 100 105 110

Pro Asn Lys Val Leu Leu Ala Leu Phe Thr Cys Glu Met Leu Val Lys
 115 120 125

Met Tyr Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn Arg
 130 135 140

Phe Asp Cys Phe Val Val Cys Gly Gly Ile Thr Glu Thr Ile Leu Val
 145 150 155 160

Glu Leu Glu Ile Met Ser Pro Leu Gly Ile Ser Val Phe Arg Cys Val
 165 170 175

Arg Leu Leu Arg Ile Phe Lys Val Thr Arg His Trp Thr Ser Leu Ser
 180 185 190

Asn Leu Val Ala Ser Leu Leu Asn Ser Met Lys Ser Ile Ala Ser Leu
 195 200 205

Leu Leu Leu Phe Leu Phe Ile Ile Phe Ser Leu Leu Gly Met
 210 215 220

Gln Leu Phe Gly Gly Lys Phe Asn Phe Asp Glu Thr Gln Thr Lys Arg
 225 230 235 240

Ser Thr Phe Asp Asn Phe Pro Gln Ala Leu Leu Thr Val Phe Gln Ile
 245 250 255

Leu Thr Gly Glu Asp Trp Asn Ala Val Met Tyr Asp Gly Ile Met Ala
 260 265 270

Tyr Gly Gly Pro Ser Ser Ser Gly Met Ile Val Cys Ile Tyr Phe Ile
 275 280 285

Ile Leu Phe Ile Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe Leu Ala
 290 295 300

Ile Ala Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Asn Thr Ala Gln
 305 310 315 320

Lys Glu Glu Ala Glu Glu Lys Glu Arg Lys Lys Ile Ala Arg Lys Glu
 325 330 335

Ser Leu Glu Asn Lys Lys Asn Asn Lys Pro Glu Val Asn Gln Ile Ala
 340 345 350

Asn Ser Asp Asn Lys Val Thr Ile Asp Asp Tyr Arg Glu Glu Asp Glu
 355 360 365
 Asp Lys Asp Pro Tyr Pro Pro Cys Asp Val Pro Gly Met Val Xaa Xaa
 370 375 380
 Xaa
 385 390 395 400
 Xaa
 405 410 415
 Xaa
 420 425 430
 Xaa
 435 440 445
 Xaa
 450 455 460
 Xaa
 465 470 475 480
 Xaa Xaa Pro Cys Arg Ile Arg Val Gly Cys His Lys Leu Ile Asn His
 485 490 495
 His Ile Phe Thr Asn Leu Ile Leu Val Phe Ile Met Leu Ser Ser Ala
 500 505 510
 Ala Leu Ala Ala Glu Asp Pro Ile Arg Ser His Ser Phe Arg Asn Thr
 515 520 525
 Ile Leu Gly Tyr Phe Asp Tyr Ala Phe Thr Ala Ile Phe Thr Val Glu
 530 535 540
 Ile Leu Leu Lys Met Thr Thr Phe Gly Ala Phe Leu His Lys Gly Ala
 545 550 555 560
 Phe Cys Arg Asn Tyr Phe Asn Leu Leu Asp Met Leu Val Val Gly Val
 565 570 575
 Ser Leu Val Ser Phe Gly Ile Gln Ser Ser Ala Ile Ser Val Val Lys
 580 585 590
 Ile Leu Arg Val Leu Arg Val Leu Arg Pro Leu Arg Ala Ile Asn Arg
 595 600 605
 Ala Lys Gly Leu Lys His Val Val Gln Cys Val Phe Val Ala Ile Arg
 610 615 620
 Thr Ile Gly Asn Ile Met Ile Val Thr Thr Leu Leu Gln Phe Met Phe
 625 630 635 640
 Ala Cys Ile Gly Val Gln Leu Phe Lys Gly Lys Phe Tyr Arg Cys Thr
 645 650 655

Asp Glu Ala Lys Ser Asn Pro Glu Glu Cys Arg Gly Leu Phe Ile Leu
660 665 670

Tyr Lys Asp Gly Asp Val Asp Ser Pro Val Val Arg Glu Arg Ile Trp
675 680 685

Gln Asn Ser Asp Phe Asn Phe Asp Asn Val Leu Ser Ala Met Met Ala
690 695 700

Leu Phe Thr Val Ser Thr Phe Glu Gly Trp Pro Ala Leu Leu Tyr Lys
705 710 715 720

Ala Ile Asp Ser Asn Gly Glu Asn Ile Gly Pro Ile Tyr Asn His Arg
725 730 735

Val Glu Ile Ser Ile Phe Phe Ile Tyr Ile Ile Ile Val Ala Phe
740 745 750

Phe Met Met Asn Ile Phe Val Gly Phe Val Ile Val Thr Phe Gln Glu
755 760 765

Gln Gly Glu Lys Glu Tyr Lys Asn Cys Glu Leu Asp Lys Asn Gln Arg
770 775 780

Gln Cys Val Glu Tyr Ala Leu Lys Ala Arg Pro Leu Arg Arg Tyr Ile
785 790 795 800

Pro Lys Asn Pro Tyr Gln Tyr Lys Phe Trp Tyr Val Val Asn Ser Ser
805 810 815

Pro Phe Glu Tyr Met Met Phe Val Leu Ile Met Leu Asn Thr Leu Cys
820 825 830

Leu Ala Met Gln His Tyr Glu Gln Ser Lys Met Phe Asn Asp Ala Met
835 840 845

Asp Ile Leu Asn Met Val Phe Thr Gly Val Phe Thr Val Glu Met Val
850 855 860

Leu Lys Val Ile Ala Phe Lys Pro Lys Gly Tyr Phe Ser Asp Ala Trp
865 870 875 880

Asn Thr Phe Asp Ser Leu Ile Val Ile Gly Ser Ile Ile Asp Val Ala
885 890 895

Leu Ser Glu Ala Lys Pro Thr Glu Ser Glu Asn Val Pro Val Pro Thr
900 905 910

Ala Thr Pro Gly Asn Ser Glu Glu Ser Asn Arg Ile Ser Ile Thr Phe
915 920 925

Phe Arg Leu Phe Arg Val Met Arg Leu Val Lys Leu Leu Ser Arg Gly
930 935 940

Glu Gly Ile Arg Thr Leu Leu Trp Thr Phe Ile Lys Ser Phe Gln Ala
945 950 955 960

Leu Pro Tyr Val Ala Leu Leu Ile Ala Met Leu Phe Phe Ile Tyr Ala
 965 970 975

 Val Ile Gly Met Gln Met Phe Gly Lys Val Ala Met Arg Asp Asn Asn
 980 985 990

 Gln Ile Asn Arg Asn Asn Asn Phe Gln Thr Phe Pro Gln Ala Val Leu
 995 1000 1005

 Leu Leu Phe Arg Cys Ala Thr Gly Glu Ala Trp Gln Glu Ile Met
 1010 1015 1020

 Leu Ala Cys Leu Pro Gly Lys Leu Cys Asp Pro Glu Ser Asp Tyr
 1025 1030 1035

 Asn Pro Gly Glu Glu Tyr Thr Cys Gly Ser Asn Phe Ala Ile Val
 1040 1045 1050

 Tyr Phe Ile Ser Phe Tyr Met Leu Cys Ala Phe Leu Ile Ile Asn
 1055 1060 1065

 Leu Phe Val Ala Val Ile Met Asp Asn Phe Asp Tyr Leu Thr Arg
 1070 1075 1080

 Asp Trp Ser Ile Leu Gly Pro His His Leu Asp Glu Phe Lys Arg
 1085 1090 1095

 Ile Trp Ser Glu Tyr Asp Pro Glu Ala Lys Gly Arg Ile Lys His
 1100 1105 1110

 Leu Asp Val Val Thr Leu Leu Arg Arg Ile Gln Pro Pro Leu Gly
 1115 1120 1125

 Phe Gly Lys Leu Cys Pro His Arg Val Ala Cys Lys Arg Leu Val
 1130 1135 1140

 Ala Met Asn Met Pro Leu Asn Ser Asp Gly Thr Val Met Phe Asn
 1145 1150 1155

 Ala Thr Leu Phe Ala Leu Val Arg Thr Ala Leu Lys Ile Lys Thr
 1160 1165 1170

 Glu Gly Asn Leu Glu Gln Ala Asn Glu Glu Leu Arg Ala Val Ile
 1175 1180 1185

 Lys Lys Ile Trp Lys Lys Thr Ser Met Lys Leu Leu Asp Gln Val
 1190 1195 1200

 Val Pro Pro Ala Gly Asp Asp Glu Val Thr Val Gly Lys Phe Tyr
 1205 1210 1215

 Ala Thr Phe Leu Ile Gln Asp Tyr Phe Arg Lys Phe Lys Lys Arg
 1220 1225 1230

 Lys Glu Gln Gly Leu Val Gly Lys Tyr Pro Ala Lys Asn Thr Thr
 1235 1240 1245

Ile Ala Leu Gln Ala Gly Leu Arg Thr Leu His Asp Ile Gly Pro
1250 1255 1260

Glu Ile Arg Arg Ala Ile Ser Cys Asp Leu Gln Asp Asp Glu Pro
1265 1270 1275

Glu Glu Thr Lys Arg Glu Glu Glu Asp Asp Val Phe Lys Arg Asn
1280 1285 1290

Gly Ala Leu Leu Gly Asn His Val Asn His Val Asn Ser Asp Arg
1295 1300 1305

Arg Asp Ser Leu Gln Gln Thr Asn Thr Thr His Arg Pro Leu His
1310 1315 1320

Val Gln Arg Pro Ser Ile Pro Pro Ala Ser Asp Thr Glu Lys Pro
1325 1330 1335

Leu Phe Pro Pro Ala Gly Asn Ser Val Cys His Asn His His Asn
1340 1345 1350

His Asn Ser Ile Gly Lys Gln Val Pro Thr Ser Thr Asn Ala Asn
1355 1360 1365

Leu Asn Asn Ala Asn Met Ser Lys Ala Ala His Gly Lys Arg Pro
1370 1375 1380

Ser Ile Gly Asn Leu Glu His Val Ser Glu Asn Gly His His Ser
1385 1390 1395

Ser His Lys His Asp Arg Glu Pro Gln Arg Arg Ser Ser Val Lys
1400 1405 1410

Arg Thr Arg Tyr Tyr Glu Thr Tyr Ile Arg Ser Asp Ser Gly Asp
1415 1420 1425

Glu Gln Leu Pro Thr Ile Cys Arg Glu Asp Pro Glu Ile His Gly
1430 1435 1440

Tyr Phe Arg Asp Pro His Cys Leu Gly Glu Gln Glu Tyr Phe Ser
1445 1450 1455

Ser Glu Glu Cys Tyr Glu Asp Asp Ser Ser Pro Thr Trp Ser Arg
1460 1465 1470

Gln Asn Tyr Gly Tyr Tyr Ser Arg Tyr Pro Gly Arg Asn Ile Asp
1475 1480 1485

Ser Glu Arg Pro Arg Gly Tyr His His Pro Gln Gly Phe Leu Glu
1490 1495 1500

Asp Asp Asp Ser Pro Val Cys Tyr Asp Ser Arg Arg Ser Pro Arg
1505 1510 1515

Arg Arg Leu Leu Pro Pro Thr Pro Ala Ser His Arg Arg Ser Ser
1520 1525 1530

Phe Asn Phe Glu Cys Leu Arg Arg Gln Ser Ser Gln Glu Glu Val
 1535 1540 1545

 Pro Ser Ser Pro Ile Phe Pro His Arg Thr Ala Leu Pro Leu His
 1550 1555 1560

 Leu Met Gln Gln Gln Ile Met Ala Val Ala Gly Leu Asp Ser Ser
 1565 1570 1575

 Lys Ala Gln Lys Tyr Ser Pro Ser His Ser Thr Arg Ser Trp Ala
 1580 1585 1590

 Thr Pro Pro Ala Thr Pro Pro Tyr Arg Asp Trp Thr Pro Cys Tyr
 1595 1600 1605

 Thr Pro Leu Ile Gln Val Glu Gln Ser Glu Ala Leu Asp Gln Val
 1610 1615 1620

 Asn Gly Ser Leu Pro Ser Leu His Arg Ser Ser Trp Tyr Thr Asp
 1625 1630 1635

 Glu Pro Asp Ile Ser Tyr Arg Thr Phe Thr Pro Ala Ser Leu Thr
 1640 1645 1650

 Val Pro Ser Ser Phe Arg Asn Lys Asn Ser Asp Lys Gln Arg Ser
 1655 1660 1665

 Ala Asp Ser Leu Val Glu Ala Val Leu Ile Ser Glu Gly Leu Gly
 1670 1675 1680

 Arg Tyr Ala Arg Asp Pro Lys Phe Val Ser Ala Thr Lys His Glu
 1685 1690 1695

 Ile Ala Asp Ala Cys Asp Leu Thr Ile Asp Glu Met Glu Ser Ala
 1700 1705 1710

 Ala Ser Thr Leu Leu Asn Gly Asn Val Arg Pro Arg Ala Asn Gly
 1715 1720 1725

 Asp Val Gly Pro Leu Ser His Arg Gln Asp Tyr Glu Leu Gln Asp
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 Phe Gly Pro Gly Tyr Ser Asp Glu Glu Pro Asp Pro Gly Arg Asp
 1745 1750 1755

 Glu Glu Asp Leu Ala Asp Glu Met Ile Cys Ile Thr Thr Leu
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 <223>

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 cgccctcaacg cccagcacag tgccctgcac acagtagtcg ctcaataaat gttcggtgg 118
 atg atg atg atg atg atg aaa aaa atg cag cat caa cgg cag cag 166
 Met Met Met Met Met Met Lys Lys Met Gln His Gln Arg Gln Gln
 1 5 10 15
 caa gcg gac cac gcg aac gag gca aac tat gca aga ggc acc aga ctt 214
 Gln Ala Asp His Ala Asn Glu Ala Asn Tyr Ala Arg Gly Thr Arg Leu
 20 25 30
 cct ctt tct ggt gaa gga cca act tct cag ccg aat agc tcc aag caa 262
 Pro Leu Ser Gly Glu Gly Pro Thr Ser Gln Pro Asn Ser Ser Lys Gln
 35 40 45
 act gtc ctg tct tgg caa gct gca atc gat gct gct aga cag gcc aag 310
 Thr Val Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys
 50 55 60
 gct gcc caa act atg agc acc tct gca ccc cca cct gta gga tct ctc 358
 Ala Ala Gln Thr Met Ser Thr Ser Ala Pro Pro Pro Val Gly Ser Leu
 65 70 75 80
 tcc caa aga aaa cgt cag caa tac gcc aag agc aaa aaa cag ggt aac 406
 Ser Gln Arg Lys Arg Gln Gln Tyr Ala Lys Ser Lys Lys Gln Gly Asn
 85 90 95
 tcg tcc aac agc cga cct gcc cgc gcc ctt ttc tgt tta tca ctc aat 454
 Ser Ser Asn Ser Arg Pro Ala Arg Ala Leu Phe Cys Leu Ser Leu Asn
 100 105 110
 aac ccc atc cga aga gcc tgc att agt ata gtg gaa tgg aaa cca ttt 502
 Asn Pro Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe
 115 120 125
 gac ata ttt ata tta ttg gct att ttt gcc aat tgt gtg gcc tta gct 550
 Asp Ile Phe Ile Leu Ala Ile Phe Ala Asn Cys Val Ala Leu Ala
 130 135 140
 att tac atc cca ttc cct gaa gat gat tct aat tca aca aat cat aac 598
 Ile Tyr Ile Pro Phe Pro Glu Asp Asp Ser Asn Ser Thr Asn His Asn
 145 150 155 160
 ttg gaa aaa gta gaa tat gcc ttc ctg att att ttt aca gtc gag aca 646
 Leu Glu Lys Val Glu Tyr Ala Phe Leu Ile Ile Phe Thr Val Glu Thr
 165 170 175
 ttt ttg aag att ata gcg tat gga tta ttg cta cat cct aat gct tat 694
 Phe Leu Lys Ile Ile Ala Tyr Gly Leu Leu Leu His Pro Asn Ala Tyr
 180 185 190
 gtt agg aat gga tgg aat tta ctg gat ttt gtt ata gta ata gta gga 742
 Val Arg Asn Gly Trp Asn Leu Leu Asp Phe Val Ile Val Ile Val Gly
 195 200 205
 ttg ttt agt gta att ttg gaa caa tta acc aaa gaa aca gaa ggc ggg 790
 Leu Phe Ser Val Ile Leu Glu Gln Leu Thr Lys Glu Thr Glu Gly Gly
 210 215 220
 aac cac tca agc ggc aaa tct gga ggc ttt gat gtc aaa gcc ctc cgt 838
 Asn His Ser Ser Gly Lys Ser Gly Gly Phe Asp Val Lys Ala Leu Arg
 225 230 235 240
 gcc ttt cga gtg ttg cga cca ctt cga cta gtg tca ggg gtg ccc agt 886
 Ala Phe Arg Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser
 245 250 255

tta caa gtt gtc ctg aac tcc att ata aaa gcc atg gtt ccc ctc ctt Leu Gln Val Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu 260 265 270	934
cac ata gcc ctt ttg gta tta ttt gta atc ata atc tat gct att ata His Ile Ala Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile 275 280 285	982
gga ttg gaa ctt ttt att gga aaa atg cac aaa aca tgg ttt ttt gct Gly Leu Glu Leu Phe Ile Gly Lys Met His Lys Thr Cys Phe Ala 290 295 300	1030
gac tca gat atc gta gct gaa gag gac cca gct cca tgg gcg ttc tca Asp Ser Asp Ile Val Ala Glu Glu Asp Pro Ala Pro Cys Ala Phe Ser 305 310 315 320	1078
ggg aat gga cgc cag tgg act gcc aat ggc acg gaa tgg agg agt ggc Gly Asn Gly Arg Gln Cys Thr Ala Asn Gly Thr Glu Cys Arg Ser Gly 325 330 335	1126
tgg gtt ggc ccg aac gga ggc atc acc aac ttt gat aac ttt ggc ttt Trp Val Gly Pro Asn Gly Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe 340 345 350	1174
gcc atg ctt act gtc ttt cag tgc atc acc atg gag ggc tgg aca gac Ala Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp 355 360 365	1222
gtg ctc tac tgg gta aat gat gcg ata gga tgg gaa tgg cca tgg gtc Val Leu Tyr Trp Val Asn Asp Ala Ile Gly Trp Glu Trp Pro Trp Val 370 375 380	1270
tat ttt gtt agt ctg atc atc ctt ggc tca ttt ttc gtc ctt aac ctg Tyr Phe Val Ser Leu Ile Ile Leu Gly Ser Phe Phe Val Leu Asn Leu 385 390 395 400	1318
gtt ctt ggt gtc ctt agt gga gaa ttc tca aag gaa aag gag aag gca Val Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala 405 410 415	1366
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gag gat cta aag ggc tac tgg gat tgg atc acc caa gct gag gac atc Glu Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile 435 440 445	1462
gat ccg gag aat gag gaa gga gga gag gaa ggc aaa cga aat act Asp Pro Glu Asn Glu Glu Gly Gly Glu Glu Gly Lys Arg Asn Thr 450 455 460	1510
agc atg ccc acc agc gag act gag tct gtc aac aca gag aac gtc agc Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ser 465 470 475 480	1558
ggg gaa ggc gag aac cga ggc tgc tgg gga agt ctc tgg tgc tgg tgg Gly Glu Gly Glu Asn Arg Gly Cys Cys Gly Ser Leu Trp Cys Trp Trp 485 490 495	1606
aga cgg aga ggc ggc gcc aag gcg ggg ccc tct ggg tgg tgg cgg cgg tgg Arg Arg Arg Gly Ala Ala Lys Ala Gly Pro Ser Gly Cys Arg Arg Trp 500 505 510	1654
ggg caa gcc atc tca aaa tcc aaa ctc agc cga cgc tgg cgt cgc tgg Gly Gln Ala Ile Ser Lys Ser Lys Leu Ser Arg Arg Trp Arg Arg Trp 515 520 525	1702
aac cga ttc aat cgc aga aga tgg agg gcc ggc gtg aag tct gtc acg Asn Arg Phe Asn Arg Arg Cys Arg Ala Ala Val Lys Ser Val Thr 530 535 540	1750
ttt tac tgg ctg gtt atc gtc ctg gtg ttt ctg aac acc tta acc att Phe Tyr Trp Leu Val Ile Val Leu Val Phe Leu Asn Thr Leu Thr Ile 545 550 555 560	1798

tcc tct gag cac tac aat cag cca gat tgg ttg aca cag att caa gat Ser Ser Glu His Tyr Asn Gln Pro Asp Trp Leu Thr Gln Ile Gln Asp 565 570 575	1846
att gcc aac aaa gtc ctc ttg gct ctg acc tgc gag atg ctg gta Ile Ala Asn Lys Val Leu Leu Ala Leu Phe Thr Cys Glu Met Leu Val 580 585 590	1894
aaa atg tac agc ttg ggc ctc caa gca tat ttc gtc tct ctt ttc aac Lys Met Tyr Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn 595 600 605	1942
cgg ttt gat tgc ttc gtg gtg ggt gga atc act gag acg atc ctg Arg Phe Asp Cys Phe Val Val Cys Gly Gly Ile Thr Glu Thr Ile Leu 610 615 620	1990
gtg gaa ctg gaa atc atg tct ccc ctg ggg atc tct gtg ttt cgg tgt Val Glu Leu Glu Ile Met Ser Pro Leu Gly Ile Ser Val Phe Arg Cys 625 630 635 640	2038
gtg cgc ctc tta aga atc ttc aaa gtg acc agg cac tgg act tcc ctg Val Arg Leu Leu Arg Ile Phe Lys Val Thr Arg His Trp Thr Ser Leu 645 650 655	2086
agc aac tta gtg gca tcc tta aac tcc atg aag tcc atc gct tcg Ser Asn Leu Val Ala Ser Leu Leu Asn Ser Met Lys Ser Ile Ala Ser 660 665 670	2134
ctg ttg ctt ctg ctt ttt ctc ttc att atc atc ttt tcc ttg ctt ggg Leu Leu Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly 675 680 685	2182
atg cag ctg ttt ggc ggc aag ttt aat ttt gat gaa acg caa acc aag Met Gln Leu Phe Gly Gly Lys Phe Asn Phe Asp Glu Thr Gln Thr Lys 690 695 700	2230
cgg agc acc ttt gac aat ttc cct caa gca ctt ctc aca gtg ttc cag Arg Ser Thr Phe Asp Asn Phe Pro Gln Ala Leu Leu Thr Val Phe Gln 705 710 715 720	2278
atc ctg aca ggc gaa gac tgg aat gct gtg atg tac gat ggc atc atg Ile Leu Thr Gly Glu Asp Trp Asn Ala Val Met Tyr Asp Gly Ile Met 725 730 735	2326
gct tac ggg ggc cca tcc tct tca gga atg atc gtc tgc atc tac ttc Ala Tyr Gly Gly Pro Ser Ser Ser Gly Met Ile Val Cys Ile Tyr Phe 740 745 750	2374
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gcc atc gct gta gac aat ttg gct gat gct gaa agt ctg aac act gct Ala Ile Ala Val Asp Asn Leu Ala Asp Ala Glu Ser Leu Asn Thr Ala 770 775 780	2470
cag aaa gaa gaa gcg gaa gaa aag gag agg aaa aag att gcc aga aaa Gln Lys Glu Glu Ala Glu Glu Lys Glu Arg Lys Lys Ile Ala Arg Lys 785 790 795 800	2518
gag agc cta gaa aat aaa aag aac aac aaa cca gaa gtc aac cag ata Glu Ser Leu Glu Asn Lys Lys Asn Asn Lys Pro Glu Val Asn Gln Ile 805 810 815	2566
gcc aac agt gac aac aag gtt aca att gat gac tat aga gaa gag gat Ala Asn Ser Asp Asn Lys Val Thr Ile Asp Asp Tyr Arg Glu Glu Asp 820 825 830	2614
gaa gac aag gac ccc tat ccg cct tgc gat gtg cca gta ggg gaa gag Glu Asp Lys Asp Pro Tyr Pro Pro Cys Asp Val Pro Val Gly Glu Glu 835 840 845	2662
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cct cga agg atc tcg gag ttg aac atg aag gaa aaa att gcc ccc atc Pro Arg Arg Ile Ser Glu Leu Asn Met Lys Glu Lys Ile Ala Pro Ile 865 870 875 880	2758
cct gaa ggg agc gct ttc ttc att ctt agc aag acc aac ccg atc cgc Pro Glu Gly Ser Ala Phe Phe Ile Leu Ser Lys Thr Asn Pro Ile Arg 885 890 895	2806
gta ggc tgc cac aag ctc atc aac cac cac atc ttc acc aac ctc atc Val Gly Cys His Lys Leu Ile Asn His His Ile Phe Thr Asn Leu Ile 900 905 910	2854
ctt gtc ttc atc atg ctg agc agc gct gcc ctg gca gag gac ccc Leu Val Phe Ile Met Leu Ser Ser Ala Ala Leu Ala Glu Asp Pro 915 920 925	2902
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gcc ttc aca gcc atc ttt act gtt gag atc ctg ttg aag atg aca act Ala Phe Thr Ala Ile Phe Thr Val Glu Ile Leu Leu Lys Met Thr Thr 945 950 955 960	2998
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ctg cgt ccc ctc agg gcc atc aac aga gca aaa gga ctt aag cac Leu Arg Pro Leu Arg Ala Ile Asn Arg Ala Lys Gly Leu Lys His 1010 1015 1020	3187
gtg gtc cag tgc gtc ttc gtg gcc atc cgg acc atc ggc aac atc Val Val Gln Cys Val Phe Val Ala Ile Arg Thr Ile Gly Asn Ile 1025 1030 1035	3232
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cac cgc gtg gag atc tcc atc ttc ttc atc atc tac atc atc att His Arg Val Glu Ile Ser Ile Phe Phe Ile Ile Tyr Ile Ile Ile 1145 1150 1155	3592

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Val Ala Phe Phe Met Met Asn	Ile Phe Val Gly Phe	Val Ile Val	
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Thr Phe Gln Glu Gln Gly Glu	Lys Glu Tyr Lys Asn	Cys Glu Leu	
1175	1180	1185	
gac aaa aat cag cgt cag tgt	gtt gaa tac gcc ttg	aaa gca cgt	3727
Asp Lys Asn Gln Arg Gln Cys	Val Glu Tyr Ala Leu	Lys Ala Arg	
1190	1195	1200	
ccc ttg cgg aga tac atc ccc	aaa aac ccc tac cag	tac aag ttc	3772
Pro Leu Arg Arg Tyr Ile Pro	Lys Asn Pro Tyr Gln	Tyr Lys Phe	
1205	1210	1215	
tgg tac gtg gtg aac tct tcg	cct ttc gaa tac atg	atg ttt gtc	3817
Trp Tyr Val Val Asn Ser Ser	Pro Phe Glu Tyr Met	Met Phe Val	
1220	1225	1230	
ctc atc atg ctc aac aca ctc	tgc ttg gcc atg cag	cac tac gag	3862
Leu Ile Met Leu Asn Thr Leu	Cys Leu Ala Met Gln	His Tyr Glu	
1235	1240	1245	
cag tcc aag atg ttc aat gat	gcc atg gac att ctg	aac atg gtc	3907
Gln Ser Lys Met Phe Asn Asp	Ala Met Asp Ile Leu	Asn Met Val	
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Phe Thr Gly Val Phe Thr Val	Glu Met Val Leu Lys	Val Ile Ala	
1265	1270	1275	
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Phe Lys Pro Lys Gly Tyr Phe	Ser Asp Ala Trp Asn	Thr Phe Asp	
1280	1285	1290	
tcc ctc atc gta atc ggc agc	att ata gac gtg gcc	ctc agc gaa	4042
Ser Leu Ile Val Ile Gly Ser	Ile Ile Asp Val Ala	Leu Ser Glu	
1295	1300	1305	
gcg gac cca act gaa agt gaa	aat gtc cct gtc cca	act gct aca	4087
Ala Asp Pro Thr Glu Ser Glu	Asn Val Pro Val Pro	Thr Ala Thr	
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Pro Gly Asn Ser Glu Glu Ser	Asn Arg Ile Ser Ile	Thr Phe Phe	
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Arg Leu Phe Arg Val Met Arg	Leu Val Lys Leu Leu	Ser Arg Gly	
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Glu Gly Ile Arg Thr Leu Leu	Trp Thr Phe Ile Lys	Ser Phe Gln	
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gcg ctc ccg tat gtg gcc ctc	ctc ata gcc atg ctg	ttc ttc atc	4267
Ala Leu Pro Tyr Val Ala Leu	Leu Ile Ala Met Leu	Phe Phe Ile	
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tat gcg gtc att ggc atg cag	atg ttt ggg aaa gtt	gcc atg aga	4312
Tyr Ala Val Ile Gly Met Gln	Met Phe Gly Lys Val	Ala Met Arg	
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Asp Asn Asn Gln Ile Asn Arg	Asn Asn Asn Phe Gln	Thr Phe Pro	
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cag gcg gtg ctg ctg ctc ttc	agg tgt gca aca ggt	gag gcc tgg	4402
Gln Ala Val Leu Leu Leu Phe	Arg Cys Ala Thr Gly	Glu Ala Trp	
1415	1420	1425	
cag gag atc atg ctg gcc tgt	ctc cca ggg aag ctc	tgt gac cct	4447
Gln Glu Ile Met Leu Ala Cys	Leu Pro Gly Lys Leu	Cys Asp Pro	
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gag tca	gat tac aac ccc ggg	gag gag tat aca tgt	ggg agc aac	4492
Glu Ser	Asp Tyr Asn Pro Gly	Glu Glu Tyr Thr Cys	Gly Ser Asn	
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Phe Ala	Ile Val Tyr Phe Ile	Ser Phe Tyr Met Leu	Cys Ala Phe	
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Leu Ile	Ile Asn Leu Phe Val	Ala Val Ile Met Asp	Asn Phe Asp	
1475	1480	1485		
tat ctg	acc cgg gac tgg tct	att ttg ggg cct cac	cat tta gat	4627
Tyr Leu	Thr Arg Asp Trp Ser	Ile Leu Gly Pro His	His Leu Asp	
1490	1495	1500		
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Glu Phe	Lys Arg Ile Trp Ser	Glu Tyr Asp Pro Glu	Ala Lys Gly	
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agg ata	aaa cac ctt gat gtg	gtc act ctg ctt cga	cgc atc cag	4717
Arg Ile	Lys His Leu Asp Val	Val Thr Leu Leu Arg	Arg Ile Gln	
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Pro Pro	Leu Gly Phe Gly Lys	Leu Cys Pro His Arg	Val Ala Cys	
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Lys Arg	Leu Val Ala Met Asn	Met Pro Leu Asn Ser	Asp Gly Thr	
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Val Met	Phe Asn Ala Thr Leu	Phe Ala Leu Val Arg	Thr Ala Leu	
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Lys Ile	Lys Thr Glu Gly Asn	Leu Glu Gln Ala Asn	Glu Glu Leu	
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Arg Ala	Val Ile Lys Lys Ile	Trp Lys Lys Thr Ser	Met Lys Leu	
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Leu Asp	Gln Val Val Pro Pro	Ala Gly Asp Asp Glu	Val Thr Val	
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Gly Lys	Phe Tyr Ala Thr Phe	Leu Ile Gln Asp Tyr	Phe Arg Lys	
1625	1630	1635		
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Phe Lys	Lys Arg Lys Glu Gln	Gly Leu Val Gly Lys	Tyr Pro Ala	
1640	1645	1650		
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Lys Asn	Thr Thr Ile Ala Leu	Gln Ala Gly Leu Arg	Thr Leu His	
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Asp Ile	Gly Pro Glu Ile Arg	Arg Ala Ile Ser Cys	Asp Leu Gln	
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Asp Asp	Glu Pro Glu Glu Thr	Lys Arg Glu Glu Asp	Asp Asp Val	
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Phe Lys	Arg Asn Gly Ala Leu	Leu Gly Asn His Val	Asn His Val	
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Asn Ser	Asp Arg Arg Asp Ser	Leu Gln Gln Thr Asn	Thr Thr His	
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Thr Glu	Lys Pro Leu Phe Pro	Pro Ala Gly Asn Ser	Val Cys His	
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Asn His	His Asn His Asn Ser	Ile Gly Lys Gln Val	Pro Thr Ser	
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Gly His	His Ser Ser His Lys	His Asp Arg Glu Pro	Gln Arg Arg	
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Ser Ser	Val Lys Arg Thr Arg	Tyr Tyr Glu Thr Tyr	Ile Arg Ser	
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Asp Ser	Gly Asp Glu Gln Leu	Pro Thr Ile Cys Arg	Glu Asp Pro	
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Glu Ile	His Gly Tyr Phe Arg	Asp Pro His Cys Leu	Gly Glu Gln	
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gag tat	ttc agt agt gag gaa	tgc tac gag gat gac	agc tcg ccc	5752
Glu Tyr	Phe Ser Ser Glu Glu	Cys Tyr Glu Asp Asp	Ser Ser Pro	
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Thr Trp	Ser Arg Gln Asn Tyr	Gly Tyr Tyr Ser Arg	Tyr Pro Gly	
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Arg Asn	Ile Asp Ser Glu Arg	Pro Arg Gly Tyr His	His Pro Gln	
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Gly Phe	Leu Glu Asp Asp Asp	Ser Pro Val Cys Tyr	Asp Ser Arg	
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Arg Ser	Pro Arg Arg Arg Leu	Leu Pro Pro Thr Pro	Ala Ser His	
1925	1930	1935		
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Arg Arg	Ser Ser Phe Asn Phe	Glu Cys Leu Arg Arg	Gln Ser Ser	
1940	1945	1950		
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Gln Glu	Glu Val Pro Ser Ser	Pro Ile Phe Pro His	Arg Thr Ala	
1955	1960	1965		
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Leu Pro	Leu His Leu Met Gln	Gln Gln Ile Met Ala	Val Ala Gly	
1970	1975	1980		
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Leu Asp	Ser Ser Lys Ala Gln	Lys Tyr Ser Pro Ser	His Ser Thr	
1985	1990	1995		
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Arg Ser	Trp Ala Thr Pro Pro	Ala Thr Pro Pro Tyr	Arg Asp Trp	
2000	2005	2010		

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Thr	Pro	Cys	Tyr	Thr	Pro	Leu	Ile	Gln	Val	Glu	Gln	Ser	Glu	Ala	
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Leu	Asp	Gln	Val	Asn	Gly	Ser	Leu	Pro	Ser	Leu	His	Arg	Ser	Ser	
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Ser Gln Arg Lys Arg Gln Gln Tyr Ala Lys Ser Lys Lys Gln Gly Asn
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Ser Ser Asn Ser Arg Pro Ala Arg Ala Leu Phe Cys Leu Ser Leu Asn
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Ile Tyr Ile Pro Phe Pro Glu Asp Asp Ser Asn Ser Thr Asn His Asn
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Val Arg Asn Gly Trp Asn Leu Leu Asp Phe Val Ile Val Ile Val Gly
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 Gln Ala Asp His Ala Asn Glu Ala Asn Tyr Ala Arg Gly Thr Arg Leu
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 Pro Leu Ser Gly Glu Gly Pro Thr Ser Gln Pro Asn Ser Ser Lys Gln
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Phe Thr	Gly Val Phe Thr Val	Glu Met Val Leu Lys	Val Ile Ala	
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ttt aag	cct aag ggg tat ttt	agt gac gcc tgg aac	acg ttt gac	3997
Phe Lys	Pro Lys Gly Tyr Phe	Ser Asp Ala Trp Asn	Thr Phe Asp	
1280	1285	1290		

tcc ctc atc gta atc ggc agc	att ata gac gtg gcc	ctc agc gaa	4042
Ser Leu Ile Val Ile Gly Ser	Ile Ile Asp Val Ala	Leu Ser Glu	
1295	1300	1305	
gcg gac cca act gaa agt gaa	aat gtc cct gtc cca	act gct aca	4087
Ala Asp Pro Thr Glu Ser Glu	Asn Val Pro Val Pro	Thr Ala Thr	
1310	1315	1320	
cct ggg aac tct gaa gag agc	aat aga atc tcc atc	acc ttt ttc	4132
Pro Gly Asn Ser Glu Glu Ser	Asn Arg Ile Ser Ile	Thr Phe Phe	
1325	1330	1335	
cgt ctt ttc cga gtg atg cga	ttg gtg aag ctt ctc	agc agg ggg	4177
Arg Leu Phe Arg Val Met Arg	Leu Val Lys Leu	Ser Arg Gly	
1340	1345	1350	
gaa ggc atc cgg aca ttg ctg	tgg act ttt att aag	tcc ttt cag	4222
Glu Gly Ile Arg Thr Leu Leu	Trp Thr Phe Ile Lys	Ser Phe Gln	
1355	1360	1365	
gcg ctc ccg tat gtg gcc ctc	ctc ata gcc atg ctg	ttc ttc atc	4267
Ala Leu Pro Tyr Val Ala Leu	Leu Ile Ala Met Leu	Phe Phe Ile	
1370	1375	1380	
tat gcg gtc att ggc atg cag	atg ttt ggg aaa gtt	gcc atg aga	4312
Tyr Ala Val Ile Gly Met Gln	Met Phe Gly Lys Val	Ala Met Arg	
1385	1390	1395	
gat aac aac cag atc aat agg	aac aat aac ttc cag	acg ttt ccc	4357
Asp Asn Asn Gln Ile Asn Arg	Asn Asn Asn Phe Gln	Thr Phe Pro	
1400	1405	1410	
cag gcg gtg ctg ctg ctc ttc	agg tgt gca aca ggt	gag gcc tgg	4402
Gln Ala Val Leu Leu Leu Phe	Arg Cys Ala Thr Gly	Glu Ala Trp	
1415	1420	1425	
cag gag atc atg ctg gcc tgt	ctc cca ggg aag ctc	tgt gac cct	4447
Gln Glu Ile Met Leu Ala Cys	Leu Pro Gly Lys Leu	Cys Asp Pro	
1430	1435	1440	
gag tca gat tac aac ccc ggg	gag gag tat aca tgt	ggg agc aac	4492
Glu Ser Asp Tyr Asn Pro Gly	Glu Glu Tyr Thr Cys	Gly Ser Asn	
1445	1450	1455	
ttt gcc att gtc tat ttc atc	agt ttt tac atg ctc	tgt gca ttt	4537
Phe Ala Ile Val Tyr Phe Ile	Ser Phe Tyr Met Leu	Cys Ala Phe	
1460	1465	1470	
ctg atc atc aat ctg ttt gtg	gct gtc atc atg gat	aat ttc gac	4582
Leu Ile Ile Asn Leu Phe Val	Ala Val Ile Met Asp	Asn Phe Asp	
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tat ctg acc cgg gac tgg tct	att ttg ggg cct cac	cat tta gat	4627
Tyr Leu Thr Arg Asp Trp Ser	Ile Leu Gly Pro His	His Leu Asp	
1490	1495	1500	
gaa ttc aaa aga ata tgg tca	gaa tat gac cct gag	gca aag gga	4672
Glu Phe Lys Arg Ile Trp Ser	Glu Tyr Asp Pro Glu	Ala Lys Gly	
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agg ata aaa cac ctt gat gtg	gtc act ctg ctt cga	cgc atc cag	4717
Arg Ile Lys His Leu Asp Val	Val Thr Leu Leu Arg	Arg Ile Gln	
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cct ccc ctg ggg ttt ggg aag	tta tgt cca cac agg	gta gcg tgc	4762
Pro Pro Leu Gly Phe Gly Lys	Leu Cys Pro His Arg	Val Ala Cys	
1535	1540	1545	
aag aga tta gtt gcc atg aac	atg cct ctc aac agt	gac ggg aca	4807
Lys Arg Leu Val Ala Met Asn	Met Pro Leu Asn Ser	Asp Gly Thr	
1550	1555	1560	
gtc atg ttt aat gca acc ctg	ttt gct ttg gtt cga	acg gct ctt	4852
Val Met Phe Asn Ala Thr Leu	Phe Ala Leu Val Arg	Thr Ala Leu	
1565	1570	1575	

aag atc	aag acc gaa ggg aac	ctg gag caa gct aat	gaa gaa ctt	4897
Lys Ile	Lys Thr Glu Gly Asn	Leu Glu Gln Ala Asn	Glu Glu Leu	
1580	1585	1590		
cgg gct	gtg ata aag aaa att	tgg aag aaa acc agc	atg aaa tta	4942
Arg Ala	Val Ile Lys Lys Ile	Trp Lys Lys Thr Ser	Met Lys Leu	
1595	1600	1605		
ctt gac	caa gtt gtc cct cca	gct ggt gat gat gag	gta acc gtg	4987
Leu Asp	Gln Val Val Pro Pro	Ala Gly Asp Asp Glu	Val Thr Val	
1610	1615	1620		
ggg aag	ttc tat gcc act ttc	ctg ata cag gac tac	ttt agg aaa	5032
Gly Lys	Phe Tyr Ala Thr Phe	Leu Ile Gln Asp Tyr	Phe Arg Lys	
1625	1630	1635		
ttc aag	aaa cgg aaa gaa caa	gga ctg gtg gga aag	tac cct gcg	5077
Phe Lys	Lys Arg Lys Glu Gln	Gly Leu Val Gly Lys	Tyr Pro Ala	
1640	1645	1650		
aag aac	acc aca att gcc cta	cag gcg gga tta agg	aca ctg cat	5122
Lys Asn	Thr Thr Ile Ala Leu	Gln Ala Gly Leu Arg	Thr Leu His	
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gac att	ggg cca gaa atc cgg	cgt gct ata tcg tgt	gat ttg caa	5167
Asp Ile	Gly Pro Glu Ile Arg	Arg Ala Ile Ser Cys	Asp Leu Gln	
1670	1675	1680		
gat gac	gag cct gag gaa aca	aaa cga gaa gaa gaa	gat gat gtg	5212
Asp Asp	Glu Pro Glu Glu Thr	Lys Arg Glu Glu Glu	Asp Asp Val	
1685	1690	1695		
ttc aaa	aga aat ggt gcc ctg	ctt gga aac cat gtc	aat cat gtt	5257
Phe Lys	Arg Asn Gly Ala Leu	Leu Gly Asn His Val	Asn His Val	
1700	1705	1710		
aat agt	gat agg aga gat tcc	ctt cag cag acc aat	acc acc cac	5302
Asn Ser	Asp Arg Arg Asp Ser	Leu Gln Gln Thr Asn	Thr Thr His	
1715	1720	1725		
cgt ccc	ctg cat gtc caa agg	cct tca att cca cct	gca agt gat	5347
Arg Pro	Leu His Val Gln Arg	Pro Ser Ile Pro Pro	Ala Ser Asp	
1730	1735	1740		
act gag	aaa ccg ctg ttt cct	cca gca gga aat tcg	gtg tgt cat	5392
Thr Glu	Lys Pro Leu Phe Pro	Pro Ala Gly Asn Ser	Val Cys His	
1745	1750	1755		
aac cat	cat aac cat aat tcc	ata gga aag caa gtt	ccc acc tca	5437
Asn His	His Asn His Asn Ser	Ile Gly Lys Gln Val	Pro Thr Ser	
1760	1765	1770		
aca aat	gcc aat ctc aat aat	gcc aat atg tcc aaa	gct gcc cat	5482
Thr Asn	Ala Asn Leu Asn Asn	Ala Asn Met Ser Lys	Ala Ala His	
1775	1780	1785		
gga aag	cgg ccc agc att ggg	aac ctt gag cat gtg	tct gaa aat	5527
Gly Lys	Arg Pro Ser Ile Gly	Asn Leu Glu His Val	Ser Glu Asn	
1790	1795	1800		
ggg cat	cat tct tcc cac aag	cat gac cgg gag cct	cag aga agg	5572
Gly His	His Ser Ser His Lys	His Asp Arg Glu Pro	Gln Arg Arg	
1805	1810	1815		
tcc agt	gtg aaa aga acc cgc	tat tat gaa act tac	att agg tcc	5617
Ser Ser	Val Lys Arg Thr Arg	Tyr Tyr Glu Thr Tyr	Ile Arg Ser	
1820	1825	1830		
gac tca	gga gat gaa cag ctc	cca act att tgc cgg	gaa gac cca	5662
Asp Ser	Gly Asp Glu Gln Leu	Pro Thr Ile Cys Arg	Glu Asp Pro	
1835	1840	1845		
gag ata	cat ggc tat ttc agg	gac ccc cac tgc ttg	ggg gag cag	5707
Glu Ile	His Gly Tyr Phe Arg	Asp Pro His Cys Leu	Gly Glu Gln	
1850	1855	1860		

gag tat ttc agt agt gag gaa	tgc tac gag gat gac	agc tcg ccc	5752
Glu Tyr Phe Ser Ser Glu Glu	Cys Tyr Glu Asp Asp	Ser Ser Pro	
1865	1870	1875	
acc tgg agc agg caa aac tat	ggc tac tac agc aga	tac cca ggc	5797
Thr Trp Ser Arg Gln Asn Tyr	Gly Tyr Tyr Ser Arg	Tyr Pro Gly	
1880	1885	1890	
aga aac atc gac tct gag agg	ccc cga ggc tac cat	cat ccc caa	5842
Arg Asn Ile Asp Ser Glu Arg	Pro Arg Gly Tyr His	His Pro Gln	
1895	1900	1905	
gga ttc ttg gag gac gat gac	tgc ccc gtt tgc tat	gat tca cgg	5887
Gly Phe Leu Glu Asp Asp Asp	Ser Pro Val Cys Tyr	Asp Ser Arg	
1910	1915	1920	
aga tct cca agg aga cgc cta	cta cct ccc acc cca	gca tcc cac	5932
Arg Ser Pro Arg Arg Arg Leu	Leu Pro Pro Thr Pro	Ala Ser His	
1925	1930	1935	
cgg aga tcc tcc ttc aac ttt	gag tgc ctg cgc cgg	cag agc agc	5977
Arg Arg Ser Ser Phe Asn Phe	Glu Cys Leu Arg Arg	Gln Ser Ser	
1940	1945	1950	
cag gaa gag gtc ccg tcg tct	ccc atc ttc ccc cat	cgc acg gcc	6022
Gln Glu Glu Val Pro Ser Ser	Pro Ile Phe Pro His	Arg Thr Ala	
1955	1960	1965	
ctg cct ctg cat cta atg cag	caa cag atc atg gca	gtt gcc ggc	6067
Leu Pro Leu His Leu Met Gln	Gln Gln Ile Met Ala	Val Ala Gly	
1970	1975	1980	
cta gat tca agt aaa gcc cag	aag tac tca ccg agt	cac tcg acc	6112
Leu Asp Ser Ser Lys Ala Gln	Lys Tyr Ser Pro Ser	His Ser Thr	
1985	1990	1995	
cgg tcg tgg gcc acc cct cca	gca acc oct ccc tac	cgg gac tgg	6157
Arg Ser Trp Ala Thr Pro Pro	Ala Thr Pro Pro Tyr	Arg Asp Trp	
2000	2005	2010	
aca ccg tgc tac acc ccc ctg	atc caa gtg gag cag	tca gag gcc	6202
Thr Pro Cys Tyr Thr Pro Leu	Ile Gln Val Glu Gln	Ser Glu Ala	
2015	2020	2025	
ctg gac cag gtg aac ggc agc	ctg ccg tcc ctg cac	cgc acg tcc	6247
Leu Asp Gln Val Asn Gly Ser	Leu Pro Ser Leu His	Arg Ser Ser	
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Trp Tyr Thr Asp Glu Pro Asp	Ile Ser Tyr Arg Thr	Phe Thr Pro	
2045	2050	2055	
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Ala Ser Leu Thr Val Pro Ser	Ser Phe Arg Asn Lys	Asn Ser Asp	
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aag cag agg agt gcg gac agc	ttg gtg gag gca gtc	ctg ata tcc	6382
Lys Gln Arg Ser Ala Asp Ser	Leu Val Glu Ala Val	Leu Ile Ser	
2075	2080	2085	
gaa ggc ttg gga cgc tat gca	agg gac cca aaa ttt	gtg tca gca	6427
Glu Gly Leu Gly Arg Tyr Ala	Arg Asp Pro Lys Phe	Val Ser Ala	
2090	2095	2100	
aca aaa cac gaa atc gct gat	gcc tgt gac ctc acc	atc gac gag	6472
Thr Lys His Glu Ile Ala Asp	Ala Cys Asp Leu Thr	Ile Asp Glu	
2105	2110	2115	
atg gag agt gca gcc agc acc	ctg ctt aat ggg aac	gtg cgt ccc	6517
Met Glu Ser Ala Ala Ser Thr	Leu Leu Asn Gly Asn	Val Arg Pro	
2120	2125	2130	
cga gcc aac ggg gat gtg ggc	ccc ctc tca cac cgg	cag gac tat	6562
Arg Ala Asn Gly Asp Val Gly	Pro Leu Ser His Arg	Gln Asp Tyr	
2135	2140	2145	

gag cta cag gac ttt ggt cct ggc tac agc gac gaa gag cca gac 6607
Glu Leu Gln Asp Phe Gly Pro Gly Tyr Ser Asp Glu Glu Pro Asp
2150 2155 2160

cct ggg agg gat gag gag gac ctg gcg gat gaa atg ata tgc atc 6652
Pro Gly Arg Asp Glu Glu Asp Leu Ala Asp Glu Met Ile Cys Ile
2165 2170 2175

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Thr Thr Leu
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<213> Homo sapiens

<400> 20

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Pro Leu Ser Gly Glu Gly Pro Thr Ser Gln Pro Asn Ser Ser Lys Gln
35 40 45

Thr Val Leu Ser Trp Gln Ala Ala Ile Asp Ala Ala Arg Gln Ala Lys
50 55 60

Ala Ala Gln Thr Met Ser Thr Ser Ala Pro Pro Pro Val Gly Ser Leu
65 70 75 80

Ser Gln Arg Lys Arg Gln Gln Tyr Ala Lys Ser Lys Lys Gln Gly Asn
85 90 95

Ser Ser Asn Ser Arg Pro Ala Arg Ala Leu Phe Cys Leu Ser Leu Asn
100 105 110

Asn Pro Ile Arg Arg Ala Cys Ile Ser Ile Val Glu Trp Lys Pro Phe
115 120 125

Asp Ile Phe Ile Leu Leu Ala Ile Phe Ala Asn Cys Val Ala Leu Ala
130 135 140

Ile Tyr Ile Pro Phe Pro Glu Asp Asp Ser Asn Ser Thr Asn His Asn
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Leu Glu Lys Val Glu Tyr Ala Phe Leu Ile Ile Phe Thr Val Glu Thr
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Phe Leu Lys Ile Ile Ala Tyr Gly Leu Leu Leu His Pro Asn Ala Tyr
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Val Arg Asn Gly Trp Asn Leu Leu Asp Phe Val Ile Val Ile Val Gly
 195 200 205

Leu Phe Ser Val Ile Leu Glu Gln Leu Thr Lys Glu Thr Glu Gly Gly
 210 215 220

Asn His Ser Ser Gly Lys Ser Gly Gly Phe Asp Val Lys Ala Leu Arg
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Ala Phe Arg Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro Ser
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Leu Gln Val Val Leu Asn Ser Ile Ile Lys Ala Met Val Pro Leu Leu
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His Ile Ala Leu Leu Val Leu Phe Val Ile Ile Ile Tyr Ala Ile Ile
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Gly Leu Glu Leu Phe Ile Gly Lys Met His Lys Thr Cys Phe Phe Ala
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Asp Ser Asp Ile Val Ala Glu Glu Asp Pro Ala Pro Cys Ala Phe Ser
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Gly Asn Gly Arg Gln Cys Thr Ala Asn Gly Thr Glu Cys Arg Ser Gly
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Trp Val Gly Pro Asn Gly Gly Ile Thr Asn Phe Asp Asn Phe Ala Phe
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Ala Met Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp
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Val Leu Tyr Trp Val Asn Asp Ala Ile Gly Trp Glu Trp Pro Trp Val
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Tyr Phe Val Ser Leu Ile Ile Leu Gly Ser Phe Phe Val Leu Asn Leu
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Val Leu Gly Val Leu Ser Gly Glu Phe Ser Lys Glu Arg Glu Lys Ala
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Lys Ala Arg Gly Asp Phe Gln Lys Leu Arg Glu Lys Gln Gln Leu Glu
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Glu Asp Leu Lys Gly Tyr Leu Asp Trp Ile Thr Gln Ala Glu Asp Ile
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Asp Pro Glu Asn Glu Glu Gly Gly Glu Glu Lys Arg Asn Thr
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Ser Met Pro Thr Ser Glu Thr Glu Ser Val Asn Thr Glu Asn Val Ser
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 Arg Arg Arg Gly Ala Ala Lys Ala Gly Pro Ser Gly Cys Arg Arg Trp
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 Gly Gln Ala Ile Ser Lys Ser Lys Leu Ser Arg Arg Trp Arg Arg Trp
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 Phe Tyr Trp Leu Val Ile Val Leu Val Phe Leu Asn Thr Leu Thr Ile
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 Lys Met Tyr Ser Leu Gly Leu Gln Ala Tyr Phe Val Ser Leu Phe Asn
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 Arg Phe Asp Cys Phe Val Val Cys Gly Gly Ile Thr Glu Thr Ile Leu
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 Val Glu Leu Glu Ile Met Ser Pro Leu Gly Ile Ser Val Phe Arg Cys
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 Val Arg Leu Leu Arg Ile Phe Lys Val Thr Arg His Trp Thr Ser Leu
 645 650 655

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 Leu Leu Leu Leu Phe Leu Phe Ile Ile Ile Phe Ser Leu Leu Gly
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Pro Glu Gly Ser Ala Phe Phe Ile Leu Ser Lys Thr Asn Pro Ile Arg
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Val Gly Cys His Lys Leu Ile Asn His His Ile Phe Thr Asn Leu Ile
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 Gly Lys Arg Pro Ser Ile Gly Asn Leu Glu His Val Ser Glu Asn
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 Gly His His Ser Ser His Lys His Asp Arg Glu Pro Gln Arg Arg
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 Asp Ser Gly Asp Glu Gln Leu Pro Thr Ile Cys Arg Glu Asp Pro
 1835 1840 1845

 Glu Ile His Gly Tyr Phe Arg Asp Pro His Cys Leu Gly Glu Gln
 1850 1855 1860

 Glu Tyr Phe Ser Ser Glu Glu Cys Tyr Glu Asp Asp Ser Ser Pro
 1865 1870 1875

 Thr Trp Ser Arg Gln Asn Tyr Gly Tyr Tyr Ser Arg Tyr Pro Gly
 1880 1885 1890

 Arg Asn Ile Asp Ser Glu Arg Pro Arg Gly Tyr His His Pro Gln
 1895 1900 1905

 Gly Phe Leu Glu Asp Asp Asp Ser Pro Val Cys Tyr Asp Ser Arg
 1910 1915 1920

Arg Ser Pro Arg Arg Arg Leu Leu Pro Pro Thr Pro Ala Ser His
 1925 1930 1935

 Arg Arg Ser Ser Phe Asn Phe Glu Cys Leu Arg Arg Gln Ser Ser
 1940 1945 1950

 Gln Glu Glu Val Pro Ser Ser Pro Ile Phe Pro His Arg Thr Ala
 1955 1960 1965

 Leu Pro Leu His Leu Met Gln Gln Ile Met Ala Val Ala Gly
 1970 1975 1980

 Leu Asp Ser Ser Lys Ala Gln Lys Tyr Ser Pro Ser His Ser Thr
 1985 1990 1995

 Arg Ser Trp Ala Thr Pro Pro Ala Thr Pro Pro Tyr Arg Asp Trp
 2000 2005 2010

 Thr Pro Cys Tyr Thr Pro Leu Ile Gln Val Glu Gln Ser Glu Ala
 2015 2020 2025

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 2030 2035 2040

 Trp Tyr Thr Asp Glu Pro Asp Ile Ser Tyr Arg Thr Phe Thr Pro
 2045 2050 2055

 Ala Ser Leu Thr Val Pro Ser Ser Phe Arg Asn Lys Asn Ser Asp
 2060 2065 2070

 Lys Gln Arg Ser Ala Asp Ser Leu Val Glu Ala Val Leu Ile Ser
 2075 2080 2085

 Glu Gly Leu Gly Arg Tyr Ala Arg Asp Pro Lys Phe Val Ser Ala
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 Thr Lys His Glu Ile Ala Asp Ala Cys Asp Leu Thr Ile Asp Glu
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 Arg Ala Asn Gly Asp Val Gly Pro Leu Ser His Arg Gln Asp Tyr
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 Met Glu Pro Ser
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 tca ccc cag gat gag ggc ctg agg aag aaa cag ccc aag aag ccc ctg 285
 Ser Pro Gln Asp Glu Gly Leu Arg Lys Lys Gln Pro Lys Lys Pro Leu
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 ccc gag gtc ctg ccc agg ccg ccg cggtc ctg ttc tgc ctg acc ctg 333
 Pro Glu Val Leu Pro Arg Pro Pro Arg Ala Leu Phe Cys Leu Thr Leu
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 cag aac ccg ctg agg aag gcg tgc atc agc atc gtg gaa tgg aaa ccc 381
 Gln Asn Pro Leu Arg Lys Ala Cys Ile Ser Ile Val Glu Trp Lys Pro
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 Phe Glu Thr Ile Ile Leu Leu Thr Ile Phe Ala Asn Cys Val Ala Leu
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 gcc gtg tac ctg ccc atg ccc gag gat gac aac aac tcc ctg aac ctg 477
 Ala Val Tyr Leu Pro Met Pro Glu Asp Asp Asn Asn Ser Leu Asn Leu
 70 75 80
 ggc ctg gag aag ctg gag tac ttc ttc ctc acc gtc ttc tcc atc gaa 525
 Gly Leu Glu Lys Leu Glu Tyr Phe Phe Leu Thr Val Phe Ser Ile Glu
 85 90 95 100
 gcc gcc atg aag atc atc gcc tac ggc ttc ctg ttc cac cag gac gcc 573
 Ala Ala Met Lys Ile Ile Ala Tyr Gly Phe Leu Phe His Gln Asp Ala
 105 110 115
 tac ctg cgc agc ggc tgg aac gtg ctg gac ttc atc atc gtc ttc ctg 621
 Tyr Leu Arg Ser Gly Trp Asn Val Leu Asp Phe Ile Ile Val Phe Leu
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 Arg Ala Phe Arg Val Leu Arg Pro Leu Arg Leu Val Ser Gly Val Pro
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 Ser Leu Gln Val Val Leu Asn Ser Ile Phe Lys Ala Met Leu Pro Leu
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aag gcc gag gag agg aaa cgc agg aag atg tcc agg ggt ctc cct gac Lys Ala Glu Glu Arg Lys Arg Arg Lys Met Ser Arg Gly Leu Pro Asp 680 685 690	2301
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ccc aag ggg gag ggc atc ccc acc act gcc aag ctc aag gtc gat gag Pro Lys Gly Glu Gly Ile Pro Thr Thr Ala Lys Leu Lys Val Asp Glu 710 715 720	2397
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ccc atc cg ^g g ^c gag tcc gt ^g agg aat cag atc ctt gga tat ttt gat Pro Ile Arg Ala Glu Ser Val Arg Asn Gln Ile Leu Gly Tyr Phe Asp 825 830 835	2733
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aac atc ctg gac ctg ctg gt ^g gt ^g gct gt ^g tct ctc atc tcc atg ggt Asn Ile Leu Asp Leu Leu Val Val Ala Val Ser Leu Ile Ser Met Gly 870 875 880	2877
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gt ^g ctc cg ^c cc ^c ctg cga gg ^c atc aac aga gg ^c aaa ggg tt ^g aag cac Val Leu Arg Pro Leu Arg Ala Ile Asn Arg Ala Lys Gly Leu Lys His 905 910 915	2973
gt ^g gtc cag tgc gt ^g ttc gt ^g gg ^c atc cg ^c acc atc ggg aac atc gtc Val Val Gln Cys Val Phe Val Ala Ile Arg Thr Ile Gly Asn Ile Val 920 925 930	3021
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Ser Ser Tyr Phe	Glu Tyr Leu Met	Phe Ala Leu Ile Met	Leu Asn	
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Thr Ile Cys Leu	Gly Met Gln His Tyr	His Gin Ser Glu Glu	Met	
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Asn His Ile Ser	Asp Ile Leu Asn Val	Ala Phe Thr Ile Ile	Phe	
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Tyr Phe Gly Asp	Pro Trp Asn Val Phe	Asp Phe Leu Ile Val	Ile	
1180	1185	1190		
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Gly Ser Ile Ile	Asp Val Ile Leu Ser	Glu Ile Asp Thr Phe	Leu	
1195	1200	1205		
gcc tcc agc ggg	gga ctg tat tgc ctg	ggt ggc ggc tgc ggg	aat	3888
Ala Ser Ser Gly	Gly Leu Tyr Cys Leu	Gly Gly Gly Cys Gly	Asn	
1210	1215	1220		
gtt gac cca gac	gag agc gcc cgc atc	tcc agt gcc ttc ttc	cgc	3933
Val Asp Pro Asp	Glu Ser Ala Arg Ile	Ser Ser Ala Phe Phe	Arg	
1225	1230	1235		
ctg ttc cgg gtc	atg agg ctg atc aag	ctg ctg agt cgg gcc	gag	3978
Leu Phe Arg Val	Met Arg Leu Ile Lys	Leu Leu Ser Arg Ala	Glu	
1240	1245	1250		
ggc gtg cgc acg	ctg ctg tgg acg ttc	atc aag tcc ttc cag	gcc	4023
Gly Val Arg Thr	Leu Leu Trp Thr Phe	Ile Lys Ser Phe Gln	Ala	
1255	1260	1265		
ctg ccc tac gtg	gcc ctg ctc atc gtc	atg ctg ttc ttc atc	tac	4068
Leu Pro Tyr Val	Ala Leu Leu Ile Val	Met Leu Phe Phe Ile	Tyr	
1270	1275	1280		
gcc gtc atc ggc	atg cag atg ttt gga	aag atc gcc ctg gtg	gac	4113
Ala Val Ile Gly	Met Gln Met Phe Gly	Lys Ile Ala Leu Val	Asp	
1285	1290	1295		
ggg acc cag atc	aac cgc aac aac	ttc cag acc ttc ccg	cag	4158
Gly Thr Gln Ile	Asn Arg Asn Asn	Phe Gln Thr Phe Pro	Gln	
1300	1305	1310		
gcc gtg ctg ctg	ctc ttc agg tgt gcg	aca ggg gag gcg tgg	caa	4203
Ala Val Leu Leu	Leu Phe Arg Cys Ala	Thr Gly Glu Ala Trp	Gln	
1315	1320	1325		
gag atc ctg ctg	gcc tgc agc tac ggg	aag ttg tgc gac cca	gag	4248
Glu Ile Leu Leu	Ala Cys Ser Tyr Gly	Lys Leu Cys Asp Pro	Glu	
1330	1335	1340		
tca gac tac gcc	ccg ggc gag gag tac	acg tgt ggc acc aac	ttc	4293
Ser Asp Tyr Ala	Pro Gly Glu Glu Tyr	Thr Cys Gly Thr Asn	Phe	
1345	1350	1355		
gcc tac tac tac	ttc atc agc ttc tac	atg ctc tgc gcc ttc	ctg	4338
Ala Tyr Tyr Tyr	Phe Ile Ser Phe Tyr	Met Leu Cys Ala Phe	Leu	
1360	1365	1370		
atc atc aac ctc	tgc gtg gct gtc atc	atg gac aac ttt gac	tac	4383
Ile Ile Asn Leu	Phe Val Ala Val Ile	Met Asp Asn Phe Asp	Tyr	
1375	1380	1385		
ctg aca cgc gac	tgg tcc atc ctg ggc	cct cac cac ctg gac	gag	4428
Leu Thr Arg Asp	Trp Ser Ile Leu Gly	Pro His His Leu Asp	Glu	
1390	1395	1400		

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Phe Lys Ala Ile Trp Ala Glu Tyr Asp	Pro Glu Ala Lys Gly Arg	
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atc aag cac ctg gac gtg gtg acc ctg	ctg aga agg atc cag ccc	4518
Ile Lys His Leu Asp Val Val Thr Leu	Leu Arg Arg Ile Gln Pro	
1420	1425	1430
cct ctg ggc ttc ggg aag ttc tgt cca	cac cgg gtg gcc tgt aag	4563
Pro Leu Gly Phe Gly Lys Phe Cys Pro	His Arg Val Ala Cys Lys	
1435	1440	1445
cgc ctg gtg ggc atg aac atg ccc ctg	aac agt gac ggc acg gtc	4608
Arg Leu Val Gly Met Asn Met Pro Leu	Asn Ser Asp Gly Thr Val	
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acc ttc aat gcc acg ctc ttt gcc ctg	gtg cgc acg gcc ctc aag	4653
Thr Phe Asn Ala Thr Leu Phe Ala Leu	Val Arg Thr Ala Leu Lys	
1465	1470	1475
atc aag aca gaa ggt aac ttt gag cag	gcc aac gag gag ctg agg	4698
Ile Lys Thr Glu Gly Asn Phe Glu Gln	Ala Asn Glu Glu Leu Arg	
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gcc atc atc aag aag atc tgg aag aga	acc agc atg aag ctg ctg	4743
Ala Ile Ile Lys Lys Ile Trp Lys Arg	Thr Ser Met Lys Leu Leu	
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gac cag gtc atc cct ccc ata gga gat	gac gag gtg acc gtg ggg	4788
Asp Gln Val Ile Pro Pro Ile Gly Asp	Asp Glu Val Thr Val Gly	
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Lys Phe Tyr Ala Thr Phe Leu Ile Gln	Glu His Phe Arg Lys Phe	
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Met Lys Arg Gln Glu Glu Tyr Tyr Gly	Tyr Arg Pro Lys Lys Asp	
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Thr Val Gln Ile Gln Ala Gly Leu Arg	Thr Ile Glu Glu Glu Ala	
1555	1560	1565
gcc cct gag atc cgc cgc acc atc tca	gga gac ctg acc gcc gag	4968
Ala Pro Glu Ile Arg Arg Thr Ile Ser	Gly Asp Leu Thr Ala Glu	
1570	1575	1580
gag gag ctg gag aga gcc atg gtg gag	gct gcg atg gag gag agg	5013
Glu Glu Leu Glu Arg Ala Met Val Glu	Ala Ala Met Glu Glu Arg	
1585	1590	1595
atc ttc cgg agg acg gga ggc ctg ttt	ggc cag gtg gac acc ttc	5058
Ile Phe Arg Arg Thr Gly Gly Leu Phe	Gly Gln Val Asp Thr Phe	
1600	1605	1610
ctg gaa agg acc aac tcc ctg ccc ccg	gtg atg gcc aac caa aga	5103
Leu Glu Arg Thr Asn Ser Leu Pro Pro	Val Met Ala Asn Gln Arg	
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Pro Leu Gln Phe Ala Glu Ile Glu Met	Glu Glu Leu Glu Ser Pro	
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gtc ttc ttg gag gac ttc cct caa gat	gca aga acc aac cct ctc	5193
Val Phe Leu Glu Asp Phe Pro Gln Asp	Ala Arg Thr Asn Pro Leu	
1645	1650	1655
gct cgt gcc aat acc aac aac gcc aat	gcc aat gtt gcc tat ggc	5238
Ala Arg Ala Asn Thr Asn Asn Ala Asn	Ala Asn Val Ala Tyr Gly	
1660	1665	1670
aac agc aac cat agc aac aac cag atg	ttt tcc agc gtc cac tgt	5283
Asn Ser Asn His Ser Asn Asn Gln Met	Phe Ser Ser Val His Cys	
1675	1680	1685

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gga gcc ctc agc	cac tcc cac agg	gcc	ctg gga cct cac	agc aag	5373	
Gly Ala Leu Ser	His Ser His Arg	Ala	Leu Gly Pro His	Ser Lys		
1705	1710		1715			
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Pro Cys Ala Gly	Lys Leu Asn Gly	Gln	Leu Val Gln Pro	Gly Met		
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Pro Ile Asn Gln	Ala Pro Pro Ala	Pro	Cys Gln Gln Pro	Ser Thr		
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gat ccc cca gag	cgc ggg cag agg	agg	acc tcc ctg aca	ggg tct	5508	
Asp Pro Pro Glu	Arg Gly Gln Arg	Arg	Thr Ser Leu Thr	Gly Ser		
1750	1755		1760			
ctg caa gac gaa	gca ccc cag agg	agg	agc tcc gag ggg	agc acc	5553	
Leu Gln Asp Glu	Ala Pro Gln Arg	Arg	Ser Ser Glu Gly	Ser Thr		
1765	1770		1775			
ccc agg cgc ccg	gct cct gct aca	gct	ctg ctg atc	caa gag gct	5598	
Pro Arg Arg Pro	Ala Pro Ala Thr	Ala	Leu Leu Ile Gln	Glu Ala		
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ctg gtt cga ggg	ggc ctg gac acc	ttg	gca gct gat	gct ggc ttc	5643	
Leu Val Arg Gly	Gly Leu Asp Thr	Leu	Ala Ala Asp Ala	Gly Phe		
1795	1800		1805			
gtc acg gca aca	agc cag gcc	ctg gca	gac gcc tgt cag	atg gaa	5688	
Val Thr Ala Thr	Ser Gln Ala	Leu Ala	Asp Ala Cys	Gln Met Glu		
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ccg gag gaa gta	gag gtc gca	gcc aca	gag cta ctg aaa	gct cga	5733	
Pro Glu Glu Val	Glu Val Ala	Ala Thr	Glu Leu Leu Lys	Ala Arg		
1825	1830		1835			
gag tct gtc cag	ggc atg gcc agt	gtc	ccg gga agc	ctg agc cgc	5778	
Glu Ser Val Gln	Gly Met Ala Ser	Val	Pro Gly Ser	Leu Ser Arg		
1840	1845		1850			
agg tcc tcc ctg	ggc agc ctt gac	cag	gtc cag ggc	tcc cag gaa	5823	
Arg Ser Ser Leu	Gly Ser Leu Asp	Gln	Val Gln Gly	Ser Gln Glu		
1855	1860		1865			
acc ctt att cct	ccc agg ccg	tga	tggctgtgg	gtcccacatga	5877	
Thr Leu Ile Pro	Pro Arg Pro			ccaaggcgag		
1870						
agggacagtgcgtcagaag ctcagccctgcatggcagcc tccctctgtc tcagccctcc						5937
tgctgagctgggcggctctg gaaccgcacc aggaagccag gagcctcccc tggccagcaa						5997
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Cys Leu Thr Leu Gln Asn Pro Leu Arg Lys Ala Cys Ile Ser Ile Val						
35	40	45				

Glu Trp Lys Pro Phe Glu Thr Ile Ile Leu Leu Thr Ile Phe Ala Asn
 50 55 60

Cys Val Ala Leu Ala Val Tyr Leu Pro Met Pro Glu Asp Asp Asn Asn
 65 70 75 80

Ser Leu Asn Leu Gly Leu Glu Lys Leu Glu Tyr Phe Phe Leu Thr Val
 85 90 95

Phe Ser Ile Glu Ala Ala Met Lys Ile Ile Ala Tyr Gly Phe Leu Phe
 100 105 110

His Gln Asp Ala Tyr Leu Arg Ser Gly Trp Asn Val Leu Asp Phe Ile
 115 120 125

Ile Val Phe Leu Gly Val Phe Thr Ala Ile Leu Glu Gln Val Asn Val
 130 135 140

Ile Gln Ser Asn Thr Ala Pro Met Ser Ser Lys Gly Ala Gly Leu Asp
 145 150 155 160

Val Lys Ala Leu Arg Ala Phe Arg Val Leu Arg Pro Leu Arg Leu Val
 165 170 175

Ser Gly Val Pro Ser Leu Gln Val Val Leu Asn Ser Ile Phe Lys Ala
 180 185 190

Met Leu Pro Leu Phe His Ile Ala Leu Leu Val Leu Phe Met Val Ile
 195 200 205

Ile Tyr Ala Ile Ile Gly Leu Glu Leu Phe Lys Gly Lys Met His Lys
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Thr Cys Tyr Tyr Ile Gly Thr Asp Ile Val Ala Thr Val Glu Asn Glu
 225 230 235 240

Lys Pro Ser Pro Cys Ala Arg Thr Gly Ser Gly Arg Pro Cys Thr Ile
 245 250 255

Asn Gly Ser Glu Cys Arg Gly Trp Pro Gly Pro Asn His Gly Ile
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Thr His Phe Asp Asn Phe Gly Phe Ser Met Leu Thr Val Tyr Gln Cys
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Ile Thr Met Glu Gly Trp Thr Asp Val Leu Tyr Trp Val Asn Asp Ala
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Ile Gly Asn Glu Trp Pro Trp Ile Tyr Phe Val Thr Leu Ile Leu Leu
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Gly Ser Phe Phe Ile Leu Asn Leu Val Leu Gly Val Leu Ser Gly Glu
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Phe Thr Lys Glu Arg Glu Lys Ala Lys Ser Arg Gly Thr Phe Gln Lys
 340 345 350

Leu Arg Glu Lys Gln Gln Leu Glu Glu Asp Leu Arg Gly Tyr Met Ser
 355 360 365

 Trp Ile Thr Gln Gly Glu Val Met Asp Val Glu Asp Leu Arg Glu Gly
 370 375 380

 Lys Leu Ser Leu Glu Glu Gly Ser Asp Thr Glu Ser Leu Tyr Glu
 385 390 395 400

 Ile Glu Gly Leu Asn Lys Ile Ile Gln Phe Ile Arg His Trp Arg Gln
 405 410 415

 Trp Asn Arg Val Phe Arg Trp Lys Cys His Asp Leu Val Lys Ser Arg
 420 425 430

 Val Phe Tyr Trp Leu Val Ile Leu Ile Val Ala Leu Asn Thr Leu Ser
 435 440 445

 Ile Ala Ser Glu His His Asn Gln Pro Leu Trp Leu Thr His Leu Gln
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 Asp Ile Ala Asn Arg Val Leu Leu Ser Leu Phe Thr Ile Glu Met Leu
 465 470 475 480

 Leu Lys Met Tyr Gly Leu Gly Leu Arg Gln Tyr Phe Met Ser Ile Phe
 485 490 495

 Asn Arg Phe Asp Cys Phe Val Val Cys Ser Gly Ile Leu Glu Leu Leu
 500 505 510

 Leu Val Glu Ser Gly Ala Met Thr Pro Leu Gly Ile Ser Val Leu Arg
 515 520 525

 Cys Ile Arg Leu Leu Arg Leu Phe Lys Ile Thr Lys Tyr Trp Thr Ser
 530 535 540

 Leu Ser Asn Leu Val Ala Ser Leu Leu Asn Ser Ile Arg Ser Ile Ala
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 Ser Leu Leu Leu Leu Phe Leu Phe Ile Ile Ile Phe Ala Leu Leu
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 Gly Met Gln Leu Phe Gly Gly Arg Tyr Asp Phe Glu Asp Thr Glu Val
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 Arg Arg Ser Asn Phe Asp Asn Phe Pro Gln Ala Leu Ile Ser Val Phe
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 Gln Val Leu Thr Gly Glu Asp Trp Asn Ser Val Met Tyr Asn Gly Ile
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 Met Ala Tyr Gly Gly Pro Ser Tyr Pro Gly Val Leu Val Cys Ile Tyr
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 Phe Ile Ile Leu Phe Val Cys Gly Asn Tyr Ile Leu Leu Asn Val Phe
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Leu Ala Ile Ala Val Asp Asn Leu Ala Glu Ala Glu Ser Leu Thr Ser
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Ala Gln Lys Ala Lys Ala Glu Glu Arg Lys Arg Arg Lys Met Ser Arg
 675 680 685

Gly Leu Pro Asp Lys Thr Glu Glu Glu Lys Ser Val Met Ala Lys Lys
 690 695 700

Leu Glu Gln Lys Pro Lys Gly Glu Gly Ile Pro Thr Thr Ala Lys Leu
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Lys Val Asp Glu Phe Glu Ser Asn Val Asn Glu Val Lys Asp Pro Tyr
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Pro Ser Ala Asp Phe Pro Gly Asp Asp Glu Glu Asp Glu Pro Glu Ile
 740 745 750

Pro Val Ser Pro Arg Pro Arg Pro Leu Ala Glu Leu Gln Leu Lys Glu
 755 760 765

Lys Ala Val Pro Ile Pro Glu Ala Ser Ser Phe Phe Ile Phe Ser Pro
 770 775 780

Thr Asn Lys Val Arg Val Leu Cys His Arg Ile Val Asn Ala Thr Trp
 785 790 795 800

Phe Thr Asn Phe Ile Leu Leu Phe Ile Leu Leu Ser Ser Ala Ala Leu
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Ala Ala Glu Asp Pro Ile Arg Ala Glu Ser Val Arg Asn Gln Ile Leu
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Gly Tyr Phe Asp Ile Ala Phe Thr Ser Val Phe Thr Val Glu Ile Val
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Arg Asn Tyr Phe Asn Ile Leu Asp Leu Leu Val Val Ala Val Ser Leu
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Gly Asn Ile Val Leu Val Thr Thr Leu Leu Gln Phe Met Phe Ala Cys
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Ile Gly Val Gln Leu Phe Lys Gly Lys Phe Phe Ser Cys Asn Asp Leu
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Ser Lys Met Thr Glu Glu Glu Cys Arg Gly Tyr Tyr Tyr Val Tyr Lys
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 Asp Gly Asp Pro Thr Gln Met Glu Leu Arg Pro Arg Gln Trp Ile His
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 Arg Cys Tyr Ile Pro Lys Asn Pro Tyr Gln Tyr Gln Val Trp Tyr
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 Val Val Thr Ser Ser Tyr Phe Glu Tyr Leu Met Phe Ala Leu Ile
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 1145 1150 1155
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 Ala Arg Gly Tyr Phe Gly Asp Pro Trp Asn Val Phe Asp Phe Leu
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 Thr Phe Leu Ala Ser Ser Gly Gly Leu Tyr Cys Leu Gly Gly Gly
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 Cys Gly Asn Val Asp Pro Asp Glu Ser Ala Arg Ile Ser Ser Ala
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 Phe Phe Arg Leu Phe Arg Val Met Arg Leu Ile Lys Leu Leu Ser
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Arg Ala Glu Gly Val Arg Thr Leu Leu Trp Thr Phe Ile Lys Ser
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 Phe Ile Tyr Ala Val Ile Gly Met Gln Met Phe Gly Lys Ile Ala
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 Leu Val Asp Gly Thr Gln Ile Asn Arg Asn Asn Asn Phe Gln Thr
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 Phe Pro Gln Ala Val Leu Leu Leu Phe Arg Cys Ala Thr Gly Glu
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 Ala Trp Gln Glu Ile Leu Leu Ala Cys Ser Tyr Gly Lys Leu Cys
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 Asp Pro Glu Ser Asp Tyr Ala Pro Gly Glu Glu Tyr Thr Cys Gly
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 Thr Asn Phe Ala Tyr Tyr Phe Ile Ser Phe Tyr Met Leu Cys
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 Lys Gly Arg Ile Lys His Leu Asp Val Val Thr Leu Leu Arg Arg
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 Ala Cys Lys Arg Leu Val Gly Met Asn Met Pro Leu Asn Ser Asp
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 Gly Thr Val Thr Phe Asn Ala Thr Leu Phe Ala Leu Val Arg Thr
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 Ala Leu Lys Ile Lys Thr Glu Gly Asn Phe Glu Gln Ala Asn Glu
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 Glu Leu Arg Ala Ile Ile Lys Lys Ile Trp Lys Arg Thr Ser Met
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 Lys Leu Leu Asp Gln Val Ile Pro Pro Ile Gly Asp Asp Glu Val
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 Thr Val Gly Lys Phe Tyr Ala Thr Phe Leu Ile Gln Glu His Phe
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Arg Lys Phe Met Lys Arg Gln Glu Glu Tyr Tyr Gly Tyr Arg Pro
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 Asn Gln Arg Pro Leu Gln Phe Ala Glu Ile Glu Met Glu Glu Leu
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 Ala Tyr Gly Asn Ser Asn His Ser Asn Asn Gln Met Phe Ser Ser
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 Val His Cys Glu Arg Glu Phe Pro Gly Glu Ala Glu Thr Pro Ala
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 Pro Gly Met Pro Ile Asn Gln Ala Pro Pro Ala Pro Cys Gln Gln
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 Pro Ser Thr Asp Pro Pro Glu Arg Gly Gln Arg Arg Thr Ser Leu
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 Thr Gly Ser Leu Gln Asp Glu Ala Pro Gln Arg Arg Ser Ser Glu
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 Gly Ser Thr Pro Arg Arg Pro Ala Pro Ala Thr Ala Leu Leu Ile
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 1790 1795 1800

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Gln Met Glu Pro Glu Glu Val Glu Val Ala Ala Thr Glu Leu Leu
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Lys Ala Arg Glu Ser Val Gln Gly Met Ala Ser Val Pro Gly Ser
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